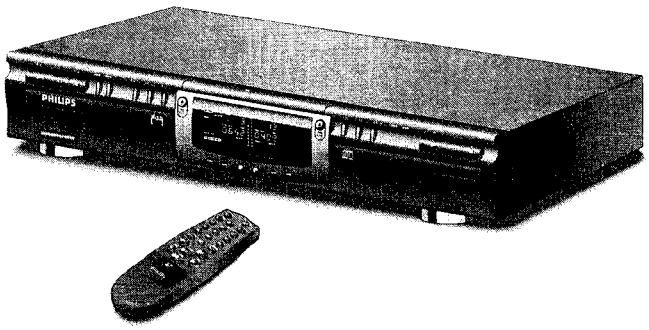
Compact disc recorder

CDR765

/00/11S/13S/17

Service
Service
Service



Service Manual

SERVICING

For servicing CDR765 the set can be divided into three parts.

1. The Display board, the Connector interface board and the Headphone board have to be repaired on component level. The power supply is available as a spare part but can also be repaired on component level.
2. The CDR-loader (containing CDR mechanism and CDM-board) and the CDR main board will be exchanged completely in case of failure. Both are available as sparepart. For easy diagnostics, the set has been equipped with a selfdiagnose program. Defective loaders and main boards have to be returned for central repair.
3. The CD-loader module is a new Loader with a CDM12.4.. The complete mounted CD-Loader but also a separate CDM12.4 mechanism and separate loader parts will be available via service stock. The CD-mainboard can be repaired on component level.

Also available: Circuit description:"The basics of Compact Disc Recordable / Rewritable.
Service codenumber 4822 725 25242.

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COMPACT disc DIGITAL AUDIO Recordable ReWritable

COMPACT disc DIGITAL AUDIO Recordable

COMPACT disc DIGITAL AUDIO ReWritable

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Subject to modification

GB 4822 725 25249

PCS 98 752

PHILIPS

TECHNICAL SPECIFICATIONS

General

1. Mains voltage
   All range version 84-250V
   /17 117V
2. Mains frequency 50-60Hz
3. Power consumption 18W

Input/Output

1. **Line output(CD & CDRW).**
   Output level: 2Vrms at 0dB.
   Output resistance: 200Ω.
2. **Line input.**
   input sensitivity: 500mVrms.
   Input impedance: 50kΩ.
   Maximum input voltage:5Vrms.
3. **Digital output(CD & CDRW).**
   Format: AES/EBU format according IEC958 (consumer format).
   Sampling frequency: 44.1kHz.
   output resistance: 75Ω.
4. **Digital input.**
   Format: AES/EBU format according IEC958 (consumer format).
   Sampling frequency: 44.1kHz.
   Input resistance: 75Ω.
5. **Optical input.**
   Format: AES/EBU format according IEC958 (consumer format).
   Sampling frequency: 44.1kHz.

Audio performance

Cinch analog output (playback path CD & CDRW).

Output voltage: 2Vrms ± 2dB. (0dB digital).
Frequency range F.R.: 20Hz < F.R. < 20kHz.
Amplitude linearity: ± 0.3dB.
typical.: ± 0.1dB.
Channel unbalance: <0.3dB at 1kHz.
typical: ±0.2dB.
Output resistance: 200Ω.
Phase non-linearity: <0.2° at 1kHz.
Outband attenuation: 50dB above 30kHz.
Channel separation: >90dB at 1kHz.
typical: 110dB.
>85dB from 20Hz. until 20kHz.
typical: >93dB.
S/N-ratio A-weigthed: >98dB
Typical: 105dB
S/N-ratio unweighted: >95dB.
typical: 100dB.
Dynamic range: >92dB. at 1kHz.
typical: 96dB.
>90dB from 20Hz. until 20kHz.
typical: 96dB.
THD+N: >82dB from 20Hz. until 20kHz.
typical: 85dB.

Cinch analog input/output (monitor path recordable unit only).

Measured with Audio precision system one.
Input voltage is 500mVrms.

Output voltage: 2Vrms ± 2dB. (0dB digital).
Frequency range F.R.: 20Hz < F.R. < 20kHz.
Amplitude linearity: ± 0.3dB.
typical.: ± 0.1dB.
Channel unbalance: <0.3dB at 1kHz.
typical: ±0.2dB.
Output resistance: 200Ω.
Phase non-linearity: <0.2° at 1kHz.
Outband attenuation: 50dB above 30kHz.
Channel separation: >90dB at 1kHz.
typical: 98dB.
>85dB from 20Hz. until 20kHz.
typical: >92dB.
S/N-ratio unweighted: >84dB.
typical: 88dB.
Dynamic range: >85dB. at 1kHz.
typical: 90dB.
THD+N: >80dB from 20Hz. until 20kHz.
typical: 85dB.
Intermodulation THD: >80dB.

Headphone output (all functions).

Output voltage: 4Vrms(0dB) / 8 - 2000Ω.
S/N: >80dB.
THD+N: >78dB.
Channel separation: >60dB from 20Hz. until 20kHz.

Dimensions and weight

1. Number and height of feet: 4 x 11mm foiled.
2. Apparatus tray closed: WxDxH 435 x 305 x 75 (without feet)
3. Weight without packaging: 4 kg
4. Weight in packaging: 5 kg

Laser Device Unit CDRW

1. Material: GaAlAs
2. Wave length: 775→795 nm(at 25°C)
3. Laser output
   read: 0,7→0,9 mW
   write: 13→18 mW
4. Class: 3B

Laser Device Unit CD

1. Material: GaAlAs
2. Wave length: 760→800 nm(at 25°C)
3. Laser output: max. 0.5 mW
4. Class: 1

DISPLAY

DISPLAY messages

Messages, as listed and explained here, may appear on the display for your guidance.

READING .....reading disc information
OPC .....during OPC procedure
OPEN .....during tray opening
CLOSE .....during tray closing
NO-DISC .....no disc inserted, or disc unreadable
UPDATE .....updating disc contents
RECOVER .....during recovery procedure
BUSY .....recording stop (4 seconds) in progress or track scanning being done in DUBB mode
SYNC .....during synchronized recording standby
TRA .....during erase-track standby
DISC .....during erase-disc standby
NO-OPC .....laser power calibration failed. Further recording not possible
FULL .....program full
CD-FULL .....no more recording possible
NOAUDIO.....(flashing) no audio disc loaded or failure to read data
FINAL.....laser power calibration performed 96 times, finalize disc
DIGITAL .....digital coaxial input selected
OPTICAL .....digital optical input selected
SHUFFLE .....during shuffle
RC-DISC .....recovered disc. Finalizing not possible
TOC .....flashes during unfinalize disc standby, lights during unfinalize disc
INPUT .....during input selection (CD-SYNC)
ANALOG .....analog input selected
DUBB1.....during normal speed dubbing
DUBB.....during high speed dubbing
DUAL .....CD recorder and CD player operating separately
SELECT CD.....during CD player selection
SELECT CDR ....during CD recorder selection
DUAL OFF.....CD recorder and CD player operating together
PROG CD ....start of CD player programming
PROG CDR start of CD recorder programming (playback)
DIGITAL REC..track will be recorded digitally
-3DB .....recording level sensitivity -3 dB
0DB .....recording level sensitivity 0 dB
3DB .....recording level sensitivity 3 dB
6DB .....recording level sensitivity 6 dB
NO REC .....data (non-audio) track found during scan
ANALOG REC ....copy prohibited track found during dubbing (track will be copied analog)

INSTALLATION

Connections general

For playback the CD recorder (and/or CD player deck) the following outputs are present:
- Digital coaxial output (CD & CDR)
- Analog output (CD & CDR)

We advise to connect these to the TAPE or CD-R input on your amplifier.

For external recording the following inputs are present:
- Digital optical input
- Digital coaxial input
- Analog input

For playback the CD player deck seperate (Dual mode) from the CD recorder the following outputs are present:
- Digital coaxial output (CD)
- Analog output (CD)

We advise you to connect these to the CD input on your amplifier.

The connections you make will depend upon the possibilities your audio equipment offers. Please refer to the user manuals for your other audio equipment first.

Digital recordings (optical or coaxial) give the best performance in audio and usability (e.g. auto-track).
(The digital optical connection is less sensitive to external disturbances).
If your equipment does not offer digital connections, the high quality Analog-Digital-Convertor of your CD recorder/player will ensure very good audio performance when recordings are made from the analog input.

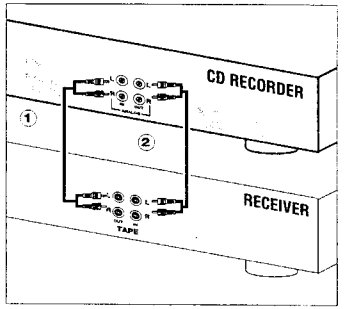
Playback via the digital coaxial output of the CD recorder/player gives the best audio performance.
If your equipment does not offer digital connections the high quality Digital-Analog-Convertor of the CD recorder/player ensures a very good sound quality via the analog output.

We advise you always to establish both digital and analog connections. In this way you can always make analog recordings when digital recording is not possible

We describe the most common ways of connecting the CD recorder/player. If you still have difficulties with the connections you always can contact Philips Consumer Service desk in your country

Analog connections CD recorder & CD player

This connection must be made for playback CD recorder deck as well as the CD player deck (cable 2).
Cable 1 is only required if you want to make recordings from an external analog source.



Use the audio cables supplied. Connect the red plugs to the R sockets, and the white plugs to the L sockets.

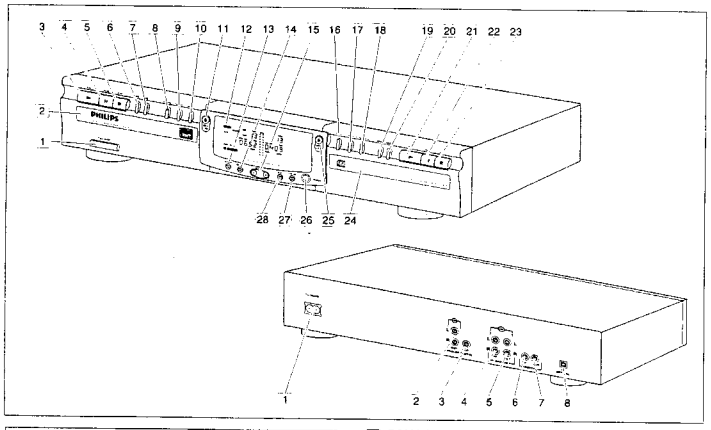
1 For external recording, connect cable 1 between the ANALOG IN-sockets on the CD recorder/player and the LINE- or TAPE OUT-sockets of an amplifier.

Note. For recording directly from a CD player the analog input of the CD recorder/player should be connected to the analog output of the CD player.

2 For playback, connect cable 2 between the ANALOG OUT-sockets on the CD recorder/player and the input sockets of an amplifier e.g. TAPE IN, CD-R or AUX.

Note: Never use the PHONO input.

CONTROLS AND CONNECTIONS



Controls on the front

CD recorder

1 **ON/OFF** . . . . . turns the CD recorder/player ON and OFF
2 Disc tray
3 **PLAY ▶** . . . . . starts play or record
4 **PAUSE II** . . . . interrupts play
5 **STOP ■** . . . . . stops
6 **⏮** . . . . . previous track/searches back
7 **⏭** . . . . . next track/searches forward/new track
8 **RECORD** . . . . . records
9 **FINALIZE** . . . . . finalizes recording
10 **ERASE** . . . . erases recording
11 **OPEN/CLOSE** . . opens/closes disc tray
12 DISPLAY (information screen)
13 **DISPLAY** . . . . selects display information
14 **SOURCE** . . . selects digital or analog input
15 **REC LEVEL** . . . adjusts the recording level (analog)
16 **CD-SYNC** . . . . . synchronized recording (automatic start when recording)
17 **DUBB** . . . . . digital dubbing (fast or normal) from CD player to CD recorder
18 **AUTO/MANUAL** . selects track increase method

CD player

19 **⏮** . . . . . previous track/searches back
20 **⏭** . . . . . next track/searches forward
21 **PLAY ▶** . . . . . starts play
22 **PAUSE II** . . . . interrupts play
23 **STOP ■** . . . . stops
24 Disc tray
25 **OPEN/CLOSE** . . . . opens/closes disc tray
26 **PHONES** . . . . socket for headphones
27 **DISPLAY** . . . . . selects display information
28 **DUAL** . . . . . separate play of CD recorder and CD player

Connections at the back

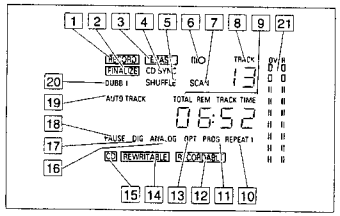
1 Connection to mains
4 **ANALOG IN** . . connects to the line output of an amplifier (left and right)
5 **ANALOG OUT CDR & CD** . . . . . connects to the line input of an amplifier (left and right)
6 **DIGITAL IN** . . . connects to the digital coaxial output of a external CD player
7 **DIGITAL OUT CDR & CD** . . . . . connects to the digital coaxial input of e.g. amplifier or recording device
8 **OPTICAL IN** . . . connects to the digital optical output of a external CD player

Only for use of the DUAL MODE (Simultanious playback):

3 **DIGITAL OUT CD** . connects CD player deck to the digital coaxial input of e.g. amplifier or recording device
2 **ANALOG OUT CD** . connects CD player deck to the line input of an amplifier (left and right)

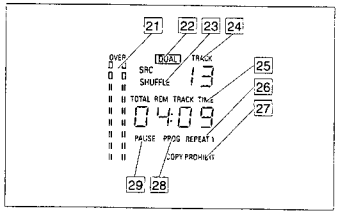
DISPLAY explanation

The display has a CD recorder section and a CD player section.



CD recorder section

1 **RECORD** . . . . . lights during recording and flashes in record standby
2 **FINALIZE** . . . . lights during finalizing and flashes in finalize standby
3 **ERASE** . . . . . lights during erase recording and flashes in erase standby
4 **CD-SYNC** . . . . synchronized recording is active.
5 **SHUFFLE** . . . . . plays tracks in random order
6 **⏥** . . . . . remote control active
7 **SCAN** . . . . . scanning for COPY PROHIBIT or data track in dubbing mode.
8 **TRACK** . . . . . track number
9 **TOTAL REM TRACK TIME** lights up according to time mode selected
10 **REPEAT (1)** . . . . . repeat function activated during play
11 **PROG** . . . . . programmed play
12 **RECORDABLE** . . unfinalized CD-R disc inserted
13 **OPT** . . . . . digital optical input is selected
14 **REWRITABLE** . . . . . CD-RW disc inserted
15 **CD** . . . . . CD inserted (a pre-recorded CD or finalized CD-R or CD-RW disc)
16 **ANALOG** . . . analog input is selected
17 **DIG** . . . . . lights when digital input is selected and flashes when digital input is incorrect.
18 **PAUSE** . . . . . pause function is active
19 **AUTO TRACK** . . . automatically increasing track numbers
20 **DUBB (1)** . . . . . dubbing from CD player to CD recorder
21 Record/play level bar (analog)



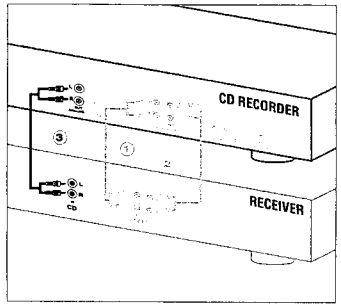
CD player section

22 **DUAL** . . . . . separate play of CD recorder and CD player
23 **SHUFFLE** . . . . . playing tracks in random order
24 **TRACK** . . . . . track number
25 **TOTAL REM TRACK TIME** lights up according to time mode selected
26 **REPEAT 1** . . . . repeat play
27 **COPY PROHIBIT** . lights when trying to record digital protected audio
28 **PROG** . . . . . programmed play
29 **PAUSE** . . . . . pause function is active

English

Analog connections CD player deck

This connection is only required if you want to playback the CD player deck seperate from the CD recorder deck. This will be the case in DUAL-mode.



1 For separate playback of the CD player deck, connect a third cable 3 (not supplied) between the ANALOG OUT sockets of the CD recorder and the input sockets of an amplifier e.g. CD, or AUX.

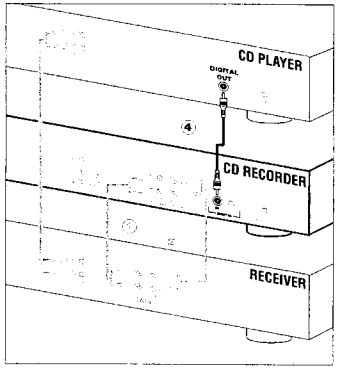
(Connect the red plugs to the R sockets, and the white plugs to the L socket.)

Note:
- *Never use the PHONO input.*

- *Your CD recorder/player is equiped with a digital coaxial output for the CD player deck. This output can be used for digital playback.*

Digital coaxial connections CD recorder

This connection is only required if you want to make recordings from an external CD player with a digital coaxial output.



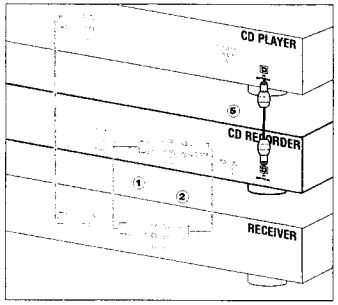
1 For external recording, connect the cable 4 (not supplied) between the DIGITAL IN-socket on the CD recorder/player and the DIGITAL OUT-socket of an external CD player.

Note: Your CD recorder/player is equipped with a digital coaxial output (common output for CD recorder & CD player deck). This output can be used for digital playback.

English

Digital optical connections CD recorder

This connection is only required if you want to make recordings from an external CD player with a digital optical output.

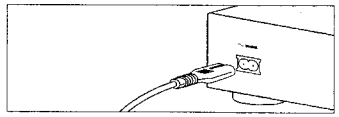


1 Remove the dust caps from the digital optical connection. (We recommend you to save the cap).

2 For external recording, connect a fibre-optic cable 5 between the digital optical input of the CD recorder/player and the digital-optical output of an external CD player.

Note: For playback the digital coaxial outputs or analog outputs of the CD Player and CD recorder should be connected to an amplifier.

Power supply



1 Plug the power cord supplied into the MAINS connector on the CD recorder/player, then into a mains socket.

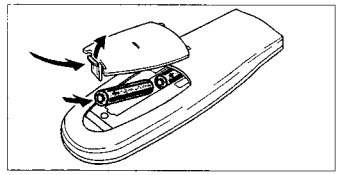
2 Press ON/OFF to turn the CD recorder/player on.

Note:
- *The CD recorder/player will automatically adjust to the local mains voltage.*
- *When the CD recorder/player is in the 'OFF' position, it is still consuming some power. If you wish to disconnect your player completely from the mains, withdraw the plug from the AC Outlet.*

Setup recommendations

- Place the CD recorder/player on a solid, vibration free surface.
- Do not place the CD recorder/player near a source of heat or in direct sunlight.
- Do not use the CD recorder/player under extremely damp conditions
- If the CD recorder/player is placed in a cabinet, make sure that a 2,5 cm space remains free on all sides of the CD recorder/player for proper ventilation.

Inserting batteries in the remote control



1 Open the battery compartment cover.

2 Insert 2 batteries (AAA, R03 or UM-4; as supplied) as shown.

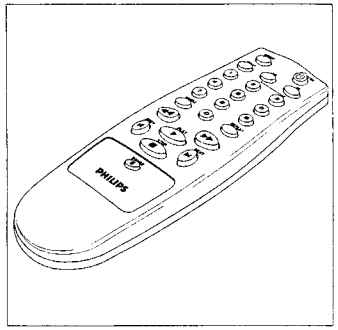
3 Replace the cover.

Note: We recommend using 2 batteries of the same type and condition.

Batteries contain chemical substances, so they should be disposed of properly.

REMOTE CONTROL & INSERTING DISCS

Remote control commands

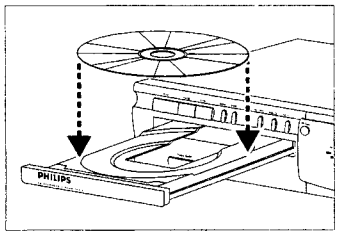


PROGRAM . . . . . programs track numbers
DISPLAY . . . . . selects display information
Number keys 0 - 9 . . . Selets a track by number
SHUFFLE . . . . . plays CD(RW) or program in random order
◄◄ . . . . . Searches backward
PREVIOUS ⏮ . . . . . selects the beginning of a previous track
STOP ■ . . . . . stops CD(RW) and clears a program
PAUSE ⏸ . . . . . interrupts CD(RW) play
NEXT ⏭ . . . . . selects the beginning of subsequent track
PLAY ► . . . . . starts CD(RW) play
►► . . . . . Searches forward
REPEAT . . . . . repeat play
CD . . . . . selects CD player
CD-R . . . . . selects CD recorder
OPEN/CLOSE . . . . . Opens or closes the disc tray

While you press a button on the remote control, the indicator on the display lights up.

Note: Unless otherwise stated, all controls are on the front of the CD recorder/player. When provided on the remote control, you can also use the corresponding buttons, after selecting the CD recorder or CD Player by pressing CDR or CD.

Inserting discs



1 Press OPEN/CLOSE ***(11)*** to open the disc tray.

2 Insert a CD, CD-R or, CD-RW in the appropriate recess in the tray, label side up

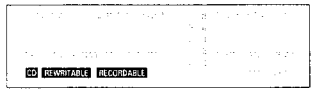
IMPORTANT:
For recording it is important that the blank disc is completely free from dust particles or scratches. (see Disc Maintenance, p.5).

An unfinalized disc will not play in the CD player !

3 Gently push the front of the tray or press OPEN/CLOSE to close the tray (see also Playing a CD)

CD-Recorder only

➜The display will show the type of disc you inserted



- If a CD-R is finalized it will show **CD** on the display.
- If a CD-RW is finalized it remains a CD-ReWritable and will show **CD REWRITABLE** on the display.

If you insert a blank or partly-recorded CD-R or CD-RW, The CD recorder/player will calibrate the disc for optimum recording.
During this process the display will first show OPC and then the number of audio tracks. Calibration can take up to 25 seconds

Note: Only Audio CDs will be accepted. If a non-audio disc is inserted, the display shows NO AUDIO.

Remarks about recording

You will soon discover how easy it is to make your own CDs Nevertheless, it is advisable to use a CD-RW disc for your first try. We will describe:
- Digital dubbing (fast or normal recording)
- Recording from external CD player:
  - Digital
  - Digital (synchronized start with external CD player)
  - Analog

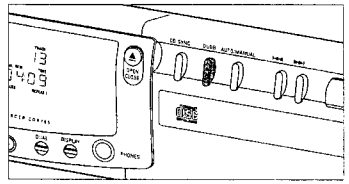
- The recording procedure is the same for CD-Rs or CD-RWs.
- If the disc is a CD-RW and is already finalized you must unfinalize it first (p 17).
- If the disc already contains recordings, the CD recorder/player will automatically search for the end of the last track, so that recording can start from there.
- There must be at least 7 seconds of recording time left on the disc, otherwise you will not be able to enter record standby mode.
- If the display indicates **COPY PROHIBIT**, no digital recording can be made of the source material. Recording will not start or stops after 4 seconds
- The **Serial Copy Management System** (SCMS) only allows digital recording under specific conditions:
  - This means that it is not possible to make a digital copy from a digital copy.
  - Analog recording is always possible !
  - The number of recordings from the original is unlimited.
- A maximum of 99 tracks can be recorded on a disc Minimum allowable track length is 4 seconds
- Digital recordings can be made from CDs (or other sources with an output Sample Frequency of 44.1 kHz +/- 100 ppm) via the digital input.
- Recordings from DAT or DCC players will not stop automatically

Important:
If you want to play the recorded CD-R disc on the internal CD player or on any regular CD player, it must first be finalized. See finalizing discs(p.17).

Finalized CD-RW discs play only on CD-RW compatible CD players.

High & normal speed dubbing

Use the dubbing feature for fast recordings from the internal CD player deck to the CD recorder (high speed). The original recording quality is retained

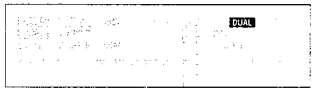


Some remarks on dubbing:
- A complete disc or program can be copied at high speed (**DUBB**)
- Single tracks (or program) will be copied at normal speed (**DUBB 1**).
- Tracks will be automatically increased
- Tracks cannot be increased manually.

Preparing for High & normal dubbing

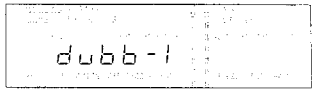
1 Make sure that the recording disc is absolutely free of scratches and dust particles

2 If necessary, press DUAL to turn off **DUAL** on the display.
➜ **DUAL** should be off.



Start high speed dubbing (Disc copy)

1 To record a complete disc or a program, press DUBB repeatedly until:
➜ DUBB appears, and **DUBB** flashes on the display
After a time, BUSY and track number appears on the display, the CD player reviews the tracks on the CD, and then stops.



- To see the tracks that will be copied, press DISPLAY.
  ➜ The track numbers will be shown in sequence.
  - If NO-REC appears the track can not be dubbed.
  - If ANALOG REC appears the track will be dubbed as analog, at normal speed.
    All other tracks will be copied normally at double speed.
  - Tracks with DIGITAL REC will be digitaly recorded at high speed.

English

2 To start dubbing, press PLAY on the CD player.
➜ High speed dubbing starts. **DUBB** lights continuously. The track number and recording time used appear.

- To check the (remaining) recording time, press Display. (This can be done during recording)
- Dubbing will stop automatically.

3 To stop recording manually , press STOP.
➜ **DUBB** goes out and dubbing stops. (minimal track lenght must be 4 seconds otherwise silence will be added to the track).

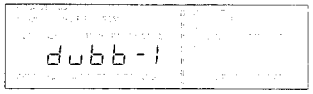
After dubbing, the display shows UPDATE for several seconds. The Total time indications can differ slightly. However no music information is lost.

Note:
- *Pause is not operative during **DUBB**.*
- *Dubbing will be done track by track This means that very short pauses will be recorded between the tracks. When you program all tracks in origional sequence and dub at normal speed (dubb1) this will not happen.*

Start normal speed dubbing (copy a track or program)

Copying track by track (DUBB-1) will be done at normal speed.

1 For recording, press DUBB repeatedly until:
➜ DUBB 1 appears, and **DUBB-1** flashes. After a time, **RECORD** flashes



2 To select a track for dubbing, briefly press ⏮ or ⏭ on the CD player one or more times.

- If you want to copy a program you have to enter a program first before selecting **DUBB-1**. (See Programming p.20).
- If you select a track via the 10-keypad on the remote control dubbing will start directly.

3 To start dubbing, press PLAY on the CD player
➜ **DUBB 1** lights continuously and the selected track or program is copied at normal speed. The track number and recording time used appear on the display

- To check the (remaining) recording time, press Display. (This can be done during recording)

Note. Copy prohibited tracks will be copied analog.

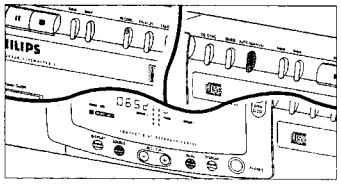
4 To stop dubbing, press STOP.
➜ **DUBB 1** goes out and dubbing stops. (minimal track lenght must be 4 seconds otherwise silence will be added to the track)

After dubbing, the display shows UPDATE for several seconds. The Total time indications can differ slightly.

However no music information is lost

*Note: Pause is not operative during **DUBB 1**.*

Digital recording from external CD player



Preparing for digital recording

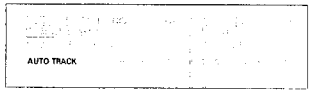
1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until (depending on the digital connection used).

➜ **DIG** DIGITAL or **DIG** OPTICAL appears on the display.

- If necessary, press DUAL to turn off **DUAL** on the display.

3 Press AUTO/MANUAL to switch between auto and manual track numbering.
➜ If AUTO is selected (preferred), **AUTO TRACK** appears on the display.



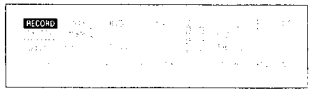
- AUTO: The track increments are automatically taken over from the digital source material.
- MANUAL: Track numbers can be incremented manually by pressing ⏭. (minimum track length is 4 sec). (This can also be done in AUTO mode).
- Track numbers cannot be changed after recording.

Note. Auto track works only with Consumer Sources with a digital output signal according to the IEC 958 (consumer part) audio standard.

English

Start digital recording

1 With the recorder stopped, press RECORD to enter the Record standby mode.
➜ **RECORD** flashes.



- If **DIG** also flashes, the digital connection is incorrect.

2 To start recording, press PLAY on the CD recorder/player and immediately start the source (from stop-mode).
➜ **RECORD** lights continuously The track number and recording time used appear on the display.

- To record a 3-second silence at the start of a track, press PAUSE on the CD recorder/player
- To check the (remaining) recording time, press DISPLAY on the CD recorder/player (This can also be done during the recording)

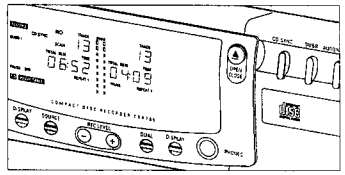
3 To stop recording, press STOP on the CD recorder/player.
➜ **RECORD** goes out

- To interrupt recording, press PAUSE on the CD recorder/player
➜ **RECORD** starts to flash. Resume at step 2.

After recording the display will show UPDATE for several seconds.

*Note. With **AUTO TRACK** on, the recorder will stop automatically. Recordings from DAT or DCC will stop after 20 seconds silence. With **AUTO TRACK** off, the **AUTO STOP** mode is disabled.*

Synchronized digital recording from external CD player - CD-SYNC



Preparing for synchronized digital recording

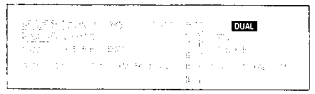
The CD-SYNC feature enables you to make fast and easy digital recording of a CD Track increments are automatically detected from the digital source material. Track increments cannot be added manually.

1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until (depending on the connection used):

➜ **DIG** DIGITAL or **DIG** OPTICAL appears on the display.

- If necessary, press DUAL to turn off **DUAL** on the display.



Start synchronized digital recording

1 With the CD recorder/player stopped, press CD-SYNC.
➜ On the display, **CD-SYNC** & SYNC appear. After a time, **RECORD** starts to flash.

- If **DIG** also flashes, the digital connection is incorrect

2 To start recording, press PLAY on the external digital source.
➜ The CD recorder/player automatically starts to record and **RECORD** lights continuously The track number and recording time used appear on the display.

- If, however, you start the source during a track, CD-SYNC recording starts at the beginning of the next track.

- To check the (remaining) recording time, press DISPLAY. (This can also be done during recording)

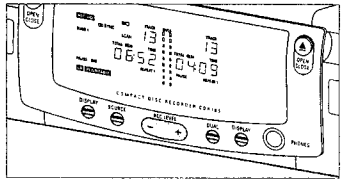
3 To stop recording, press STOP on the CD recorder/player.
➜ **CD-SYNC** and **RECORD** go out.

- To interrupt recording, press PAUSE on the CD recorder/player.
➜ **RECORD** starts to flash. Resume at step 1.

After recording the display will show UPDATE for several seconds.

Note: -The CD recorder/player will not start until it recognizes a digital signal. Although the reaction time is less than 200 milliseconds, the very beginning of the music may sometimes not be recorded. If this happens, you can start the recording manually (see digital recording - unsynchronized).
- Recordings from DAT or DCC will only stop after 20 seconds silence.

Analog recording from external source



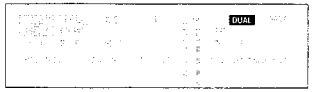
Only make analog recordings if digital recording is not possible.

Preparing for analog recording

1 Make sure the disc is absolutely free of scratches and dust particles.

2 Press SOURCE repeatedly until:
➜ **ANALOG** appears on the display.

- If necessary, press DUAL to turn off **DUAL** on the display.



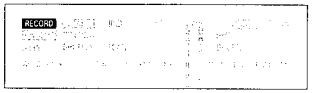
3 Press AUTO/MANUAL to switch between auto and manual track numbering.
➜ If Auto is selected (preferred), **AUTO TRACK** appears on the display.

- AUTO: The track number is automatically incremented after a silence on the original of minimum 3 seconds.

- MANUAL: Track numbers can be incremented manually by pressing ▸▸I. (minimum track length is 4 sec). (This can also be done in AUTO mode)

- Track numbers cannot be changed after recording.

4 With the recorder stopped, press RECORD to enter Record standby mode.
➜ **RECORD** flashes



5 Play the source first to set the optimal recording level on the CD recorder/player.

6 Press REC LEVEL (+ or -) repeatedly till, on the Record/Play Level bar, all the blue segments are alight, but the red segments do not light continuously during the loudest passages.
➜Display shows -3DBor 0DBor 3DBor 6DB

7 Stop the source.

Start analog recording

1 To start recording, press PLAY on the CD recorder/player and immediately start the source.
➜ **RECORD** lights continuously.The track number and recording time used appear on the display

- To record a 3-second silence at the start of a track, press PAUSE on the CD recorder/player.

- To check the (remaining) recording time, press DISPLAY. (This can also be done during the recording)

2 To stop recording, press STOP on the CD recorder/player.
➜ **RECORD** goes out.

- To interrupt recording, press PAUSE on the CD recorder/player.
➜ **RECORD** starts to flash. Resume at step 1.

After recording the display will show UPDATE for several seconds.

Note: With **AUTO TRACK** *on, the recorder will stop automatically after a 20 seconds silence. With* **AUTO TRACK** *off, the* **AUTO STOP** *mode is disabled.*

Finalizing CD-R & CD-RW discs

Finalizing is a simple procedure that is necessary in order to play the discs on this, or any external CD player.

Note: Finalizing prevents any further recording on a CD-R A finalized CD-RW must be unfinalized to allow further recording or erasure of tracks.

1 Make sure the disc (in the CD recorder/player) is absolutely free of scratches and dust particles.

2 With the recorder stopped press FINALIZE and then within 3 seconds press RECORD

➜ The approximate finalization time appears in the display Record & finalize light up. The display counts down through the finalization.
On completion, the total number of tracks and the total time recorded appears on the display.
For CD-R **CD RECORDABLE** changes to **CD** on display
For CD-RW there is no change on display.

Finalizing will last at least 2 minutes.

Note: During finalisation, the CD recorder/player accepts no operating commands.

Unfinalizing CD-RW discs

For CD-RW discs only.
If you want to make more recordings (or erasures of tracks) on a finalized disc you must unfinalize it first. The Table of Contents (TOC) will be removed.

To unfinalize:
1 Press ERASE twice.
➜ On the display, TOC and **ERASE** flash.

2 Press RECORD within 3 seconds.
➜ TOC and **ERASE** light continuously during erasure.

Note: This will take approximately 1 minute.

English

Erasing CD-RW discs

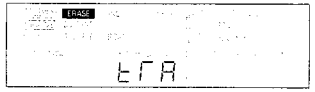
For CD-RW discs only.

You can erase:
- track by track from the end.
- the entire disc.

To erase the last track :

1 Make sure the disc is not finalized (Showing OPC on display during start up). Otherwise unfinalize first (p 17)

2 Press ERASE.
➜ On the display, TRA and **ERASE** flash.



3 Press RECORD within 3 seconds.
➜ TRA and **ERASE** light continuously during erasure.

To erase the entire disc:

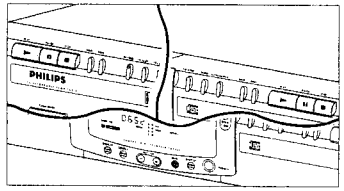
1 Press ERASE once (for finalized CD-RW) and twice (for unfinalized CD-RW)
➜ On the display, DISC and **ERASE** flash.

2 Press RECORD within 3 seconds.
➜ DISC and **ERASE** light continuously during erasure.

Erasure of a complete disc may take up to 1 5 minutes.

Playing CDs on Deck 1 and/or Deck 2

With this double deck it is possible to play the CD recorder deck and/or the CD player deck individually at the same time. In this case the extra CD output must also be connected to an amplifier as well. (see p.9).



1 Press DUAL to switch to DUAL ON
➜ DUAL lights continuously

2 On the deck you want to play, press PLAY to start CD play.
➜ The track number and track time of the deck in play appear on the display, together with the record/play level indicator

3 Press DISPLAY once, twice, or three times to see:
➜ Remaining track time, total remaining time, total track time (without level bar).

4 To interrupt play temporarily, press PAUSE.
➜ **PAUSE** lights on the display

5 To continue play, press PAUSE again or press PLAY.

6 To stop play, press STOP.
➜ The number of tracks and the total playing time appear on the display.

Play a 2-disc changer

Your CD recorder/CD player is able to play the two decks sequentially or in random order (SHUFFLE play).

1 Press **DUAL** to switch to DUAL OFF
➜ **DUAL** should be off.

2 On the deck you want to play, press PLAY to start CD play.
➜ The track number and track time of the deck in play appear on the display, together with the record/play level indicator.

After playing the first disc the second disc will be played.

TIP:
Use SHUFFLE to play the tracks of the two discs in random order (see Shuffle p.19).

English

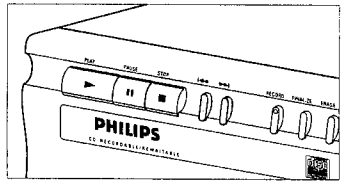
3 Press DISPLAY once, twice, three or four times to see:
➜ Remaining track time, total remaining time, total track time and level bar off.

4 To interrupt play temporarily, press PAUSE
➜ **PAUSE** lights on the display

5 To continue play, press PAUSE again or press PLAY.

6 To stop play, press STOP.
➜ The number of tracks and the total playing time appear on the display.

Selecting a track or searching



Selecting a track during play

1 Briefly press |◄◄ or ►►| one or more times.
➜ Play skips to the beginning of the present, previous or subsequent tracks, including (changer only) tracks on other disc.

or

- Select CDR or CD on the remote control and key in the required track number using the numerical keys on the remote control. For 2-digit track numbers, press the keys in rapid succession. For tracks on the other disc, first press CD or CDR as necessary.
➜ Play skips to the beginning of the selected track.

Selecting a track when CD play is stopped

1 Briefly press |◄◄ or ►►| one or more times.

or

Select CDR or CD on the remote control and key in the required track number using the numerical keys . For 2-digit track numbers, press the keys in rapid succession

2 Press PLAY
➜ Play starts at the selected track

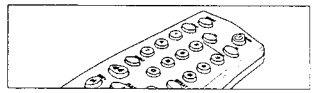
Searching during CD play

1 Hold down |◄◄ or ►►| (or ◄◄ or ►► on the remote control).
➜ The player first searches backwards or forwards at 10 times normal speed with sound at low volume, then goes to 50 times normal speed with sound muted. In changer mode (DUAL off) only, the search extends over both discs

2 Release the button at the desired passage.
➜ Play starts at the desired passage.

Note: During Shuffle, Repeat or Programmed play, search is restricted to within the track being played at the time.

Shuffle (random order) play



1 Press DUAL to switch on the 2-disc changer mode.
➜ DUAL not lighted on display.

2 Press SHUFFLE on the remote control before or during CD play to start shuffle play.
➜ The tracks on the CD (or program if set) play in random order. SHUFFLE appears on the display between tracks.

3 Press SHUFFLE again to return to normal CD play.

Note. Shuffle is also cleared if you open the disc tray.

Repeat CD, track or program

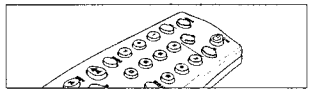
1 Press **REPEAT** on the remote control one or more times during CD play.
➜ When **REPEAT 1** appears on the display, the current track plays repeatedly. When **REPEAT** appears on the display, the discs, or programmes play repeatedly.

2 To return to normal play, press REPEAT one or more times until:
➜ The repeat label disappears from the display.

Note
- *You can use shuffle in combination with repeat CD or programmed play of the 2-disc changer.*
- *Repeat is also cleared if you open the disc tray.*

Programming

You can program up to 30 tracks to play in any desired sequence, and this can be done on either the CD player or the CD recorder/player. Tracks can be programmed more than once, but each time counts as a track.



1 On the remote control press CDR or CD to select the required deck.
➜ The message SELECT CDR or SELECT CD appears briefly on the display

2 On the remote control press PROGRAM to start programming.
➜ **PROG** flashes and PROG CDR or PROG CD appears briefly on the display

3 Key in a track number with the number keys. For 2-digit numbers, press the keys in rapid succession
➜ On the display, the track number appears briefly, followed by the total programmed tracks and total programme time.

4 Repeat step 2 for all tracks to be programmed.

5 Press STOP or PROGRAM to end programming.
➜ **PROG** lights continuously.

Note:
- *To review the program, press [⏮ or ⏭] with the CD player or CD recorder in stop mode.*
- *To add more tracks to the program, repeat steps 1 to 6.*
- *If you try to store more than 30 tracks, FULL appears on the display*

6 Press PLAY to start programmed play.

Clearing a program

1 Press STOP if necessary to stop programmed play.

2 Press STOP again to clear the program.
➜ **PROG** disappears from the display.

Note: The program is also cleared if you open the disc tray.

Troubleshooting

If you think your CD recorder/player is defective, it is wise to check this list first, and run the diagnostic program. Maybe you have forgotten a simple step

Warning!

Under no circumstances should you attempt to repair the CD recorder/player yourself as this will invalidate the guarantee.

SYMPTOM: • SOLUTION:

No power
- ensure that the ON/OFF button is on
- ensure that the mains cable is plugged in correctly
- switch the recorder OFF and then immediately back ON

Auto track does not work
- check if auto track is selected.
- check if there are 3 seconds silence in between the tracks (analog recording only)
- check if the source is a consumer source with the digital output according to the IEC audio standard

No sound
- check the audio connections
- if using an amplifier, try using a different source

Amplifier sound is distorted
- check that the CD recorder/player analog output is not connected to the amplifier Phono input

Play will not start
- ensure that the label of the CD is facing up
- clean the disc
- check that the disc is not defective by trying another disc
- check that the disc is finalized for play back in CD player

Remote control does not work
- point the remote control directly at the CD recorder/player
- check the batteries and replace if necessary

Will not record
- clean the disc
- check if CD-R(W) is not finalized
- check that the disc is recordable and replace if necessary
- the disc is not an AUDIO disc (NOAUDIO)
- wrong input source choosen

Analog recording is distorted
- make sure the recording level is correct

20 second pause between recordings
- see Synchronized digital recording (CD-SYNC) p.15

Player does not react
- switch the ON/OFF button on the front of the player off and back on

RECOVER **on display**
- a power failure has occured during recording, the CD recorder/player is attempting to repair the disc.
- if RC-DISC then appears on the display, the disc cannot be recorded further, and cannot be finalized. But it can still be played on the CD recorder/player or another CD recorder
- on a CD-RW disc, the track being recorded is lost, but further recording and finalization can still be done.
- if NO-OPC appears, no further recording is possible. You can still use the disc as a CD on this recorder.

NO-REC **on display**
- during scanning a CD before recording a non-audio track is detected This track can not be copied and will be skipped.

Diagnostic program

If the malfunction continues, perform the Diagnostic Program:

1 Switch the CD recorder/player off using ON/OFF.

2 Simultaneously press PLAY and STOP and switch the CD recorder/player back on using ON/OFF.
➜ The display will now indicate BUSY and after a few minutes, the message will change to ---- or PASSED

- If the ---- message appears, your recorder is defective and needs to be repaired. Consult your supplier or call the Philips Consumer Line to find the nearest service centre. The number of the Consumer Line can be found in the guarantee booklet.
- If the PASSED message appears, you may be misinterpreting the user instructions or using an inappropriate disc, or there may be a mechanical defect or an incorrect connection. Carefully read the user instructions once again; and if necessary contact your supplier.
- If you cannot solve the problem, contact to the nearest service centre.

3 Switch off the CD recorder/player using ON/OFF to exit from the Diagnostic Program

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

(D) WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago idetici a quelli specificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

CAUTION INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER SÄTTEILYLLE ÄLÄ KATSO SÄTEESEN.
VARNING OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN.
ADVERSEL USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UNSAETTELSE FOR STRÅLING.
DANGER INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref.UL Standard NO.1492.

NOTE ON SAFETY:

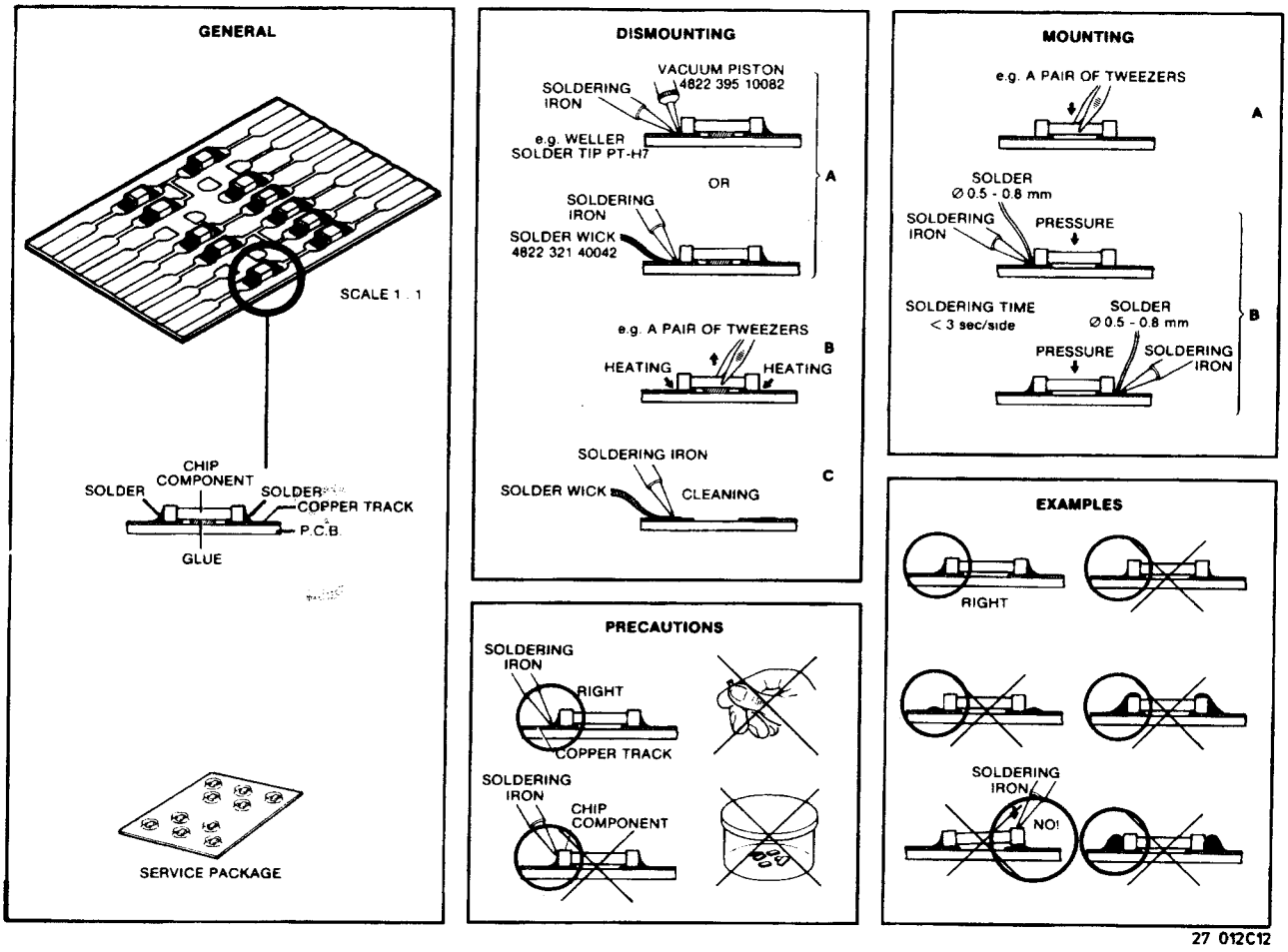
Symbol ⚠ : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol ⚠
Any other component substitution(other than original type), may increase risk or fire or electrical shock hazard.

CLASS 1
LASER PRODUCT
3122 110 03420

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne."

SERVICING HINTS

In the set chip components have been applied. For disassembly and assembly of chip components see the figure below.



SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors(SBC444) and disc with DO errors, black spots and fingerprints(SBC444A)	4822 397 30245
Disc(65 min , 1 kHz) without no pause	4822 397 30155
Maximum diameter disc(58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132

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SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Important

Proper service and repair is important to the safe, reliable operation of all Philips equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock Hazard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those units which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barriers, covers, strain reliefs, and other hardware have been installed according to the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord). Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length, and dress.
5. No lead or component should touch a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematic diagrams and/or exploded views.

   Replacement parts without the same safety characteristics may create shock, fire, or other hazards.
7. When servicing any unit, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug). Defeating this safety feature may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.

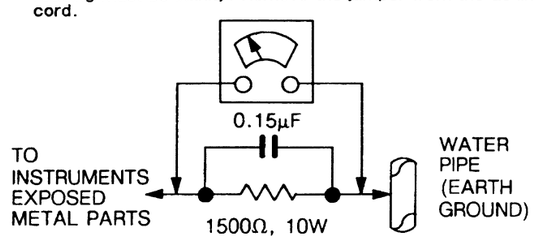
Fire and Shock Hazard (Continued)

9. After reassembly of the unit, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit is safe to operate without danger of electrical shock.

* Broken line: ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪ ▬ ▪

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled unit directly into the ac outlet.
2. Connect a 1.5k, 10W resistor paralleled by a 0.15uF. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Parts Replacement

1. Many electrical and mechanical parts in Philips equipment have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.
2. All ICs and many other semiconductor parts are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce the life of the part drastically.

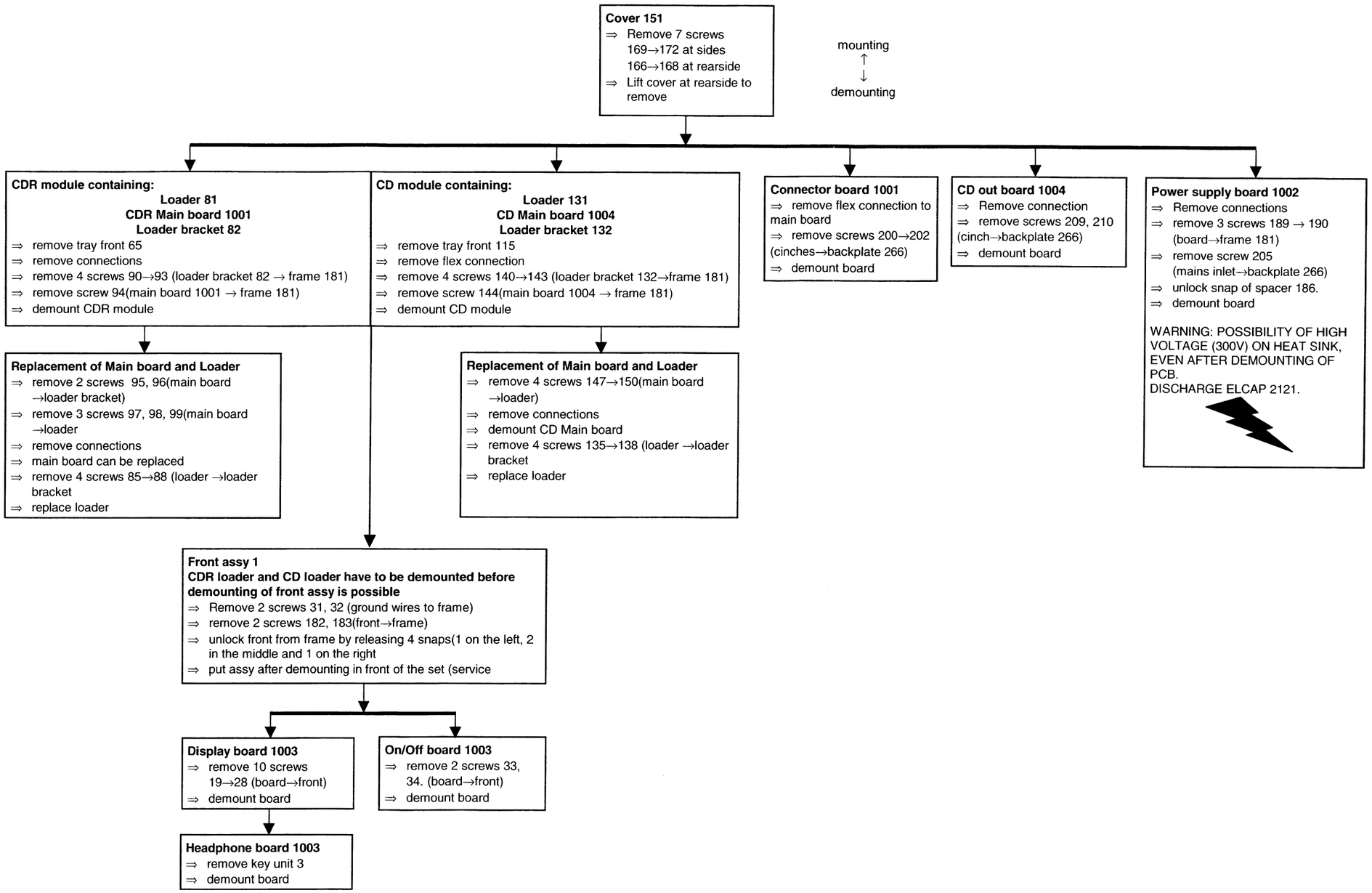
LASER NOTE:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION - The use of optical instruments with this product will increase eye hazard.

5-1

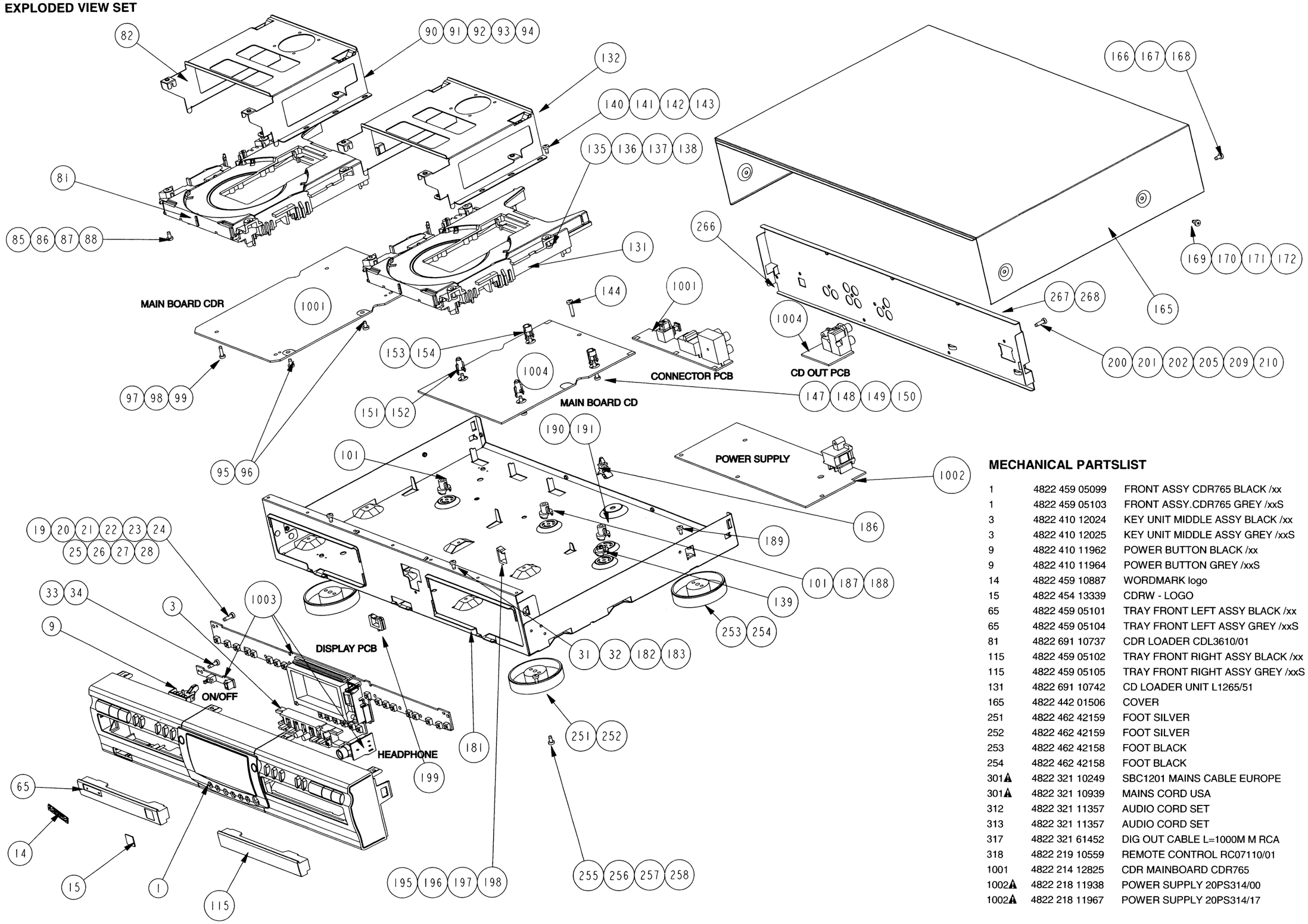
DISMANTLING INSTRUCTIONS

See exploded view for item numbers


Cover 151
⇒ Remove 7 screws
169→172 at sides
166→168 at rearside
⇒ Lift cover at rearside to remove
mounting
↑
↓
demounting
CDR module containing:
Loader 81
CDR Main board 1001
Loader bracket 82
⇒ remove tray front 65
⇒ remove connections
⇒ remove 4 screws 90→93 (loader bracket 82 → frame 181)
⇒ remove screw 94(main board 1001 → frame 181)
⇒ demount CDR module
CD module containing:
Loader 131
CD Main board 1004
Loader bracket 132
⇒ remove tray front 115
⇒ remove flex connection
⇒ remove 4 screws 140→143 (loader bracket 132→frame 181)
⇒ remove screw 144(main board 1004 → frame 181)
⇒ demount CD module
Connector board 1001
⇒ remove flex connection to main board
⇒ remove screws 200→202 (cinches→backplate 266)
⇒ demount board
CD out board 1004
⇒ Remove connection
⇒ remove screws 209, 210 (cinch→backplate 266)
⇒ demount board
Power supply board 1002
⇒ Remove connections
⇒ remove 3 screws 189 → 190 (board→frame 181)
⇒ remove screw 205 (mains inlet→backplate 266)
⇒ unlock snap of spacer 186.
⇒ demount board
WARNING: POSSIBILITY OF HIGH VOLTAGE (300V) ON HEAT SINK, EVEN AFTER DEMOUNTING OF PCB.
DISCHARGE ELCAP 2121.
Replacement of Main board and Loader
⇒ remove 2 screws 95, 96(main board →loader bracket)
⇒ remove 3 screws 97, 98, 99(main board →loader
⇒ remove connections
⇒ main board can be replaced
⇒ remove 4 screws 85→88 (loader →loader bracket
⇒ replace loader
Replacement of Main board and Loader
⇒ remove 4 screws 147→150(main board →loader)
⇒ remove connections
⇒ demount CD Main board
⇒ remove 4 screws 135→138 (loader →loader bracket
⇒ replace loader
Front assy 1
CDR loader and CD loader have to be demounted before demounting of front assy is possible
⇒ Remove 2 screws 31, 32 (ground wires to frame)
⇒ remove 2 screws 182, 183(front→frame)
⇒ unlock front from frame by releasing 4 snaps(1 on the left, 2 in the middle and 1 on the right
⇒ put assy after demounting in front of the set (service
Display board 1003
⇒ remove 10 screws 19→28 (board→front)
⇒ demount board
On/Off board 1003
⇒ remove 2 screws 33, 34. (board→front)
⇒ demount board
Headphone board 1003
⇒ remove key unit 3
⇒ demount board

5-2

EXPLODED VIEW SET



MECHANICAL PARTSLIST

1	4822 459 05099	FRONT ASSY CDR765 BLACK /xx
1	4822 459 05103	FRONT ASSY.CDR765 GREY /xxS
3	4822 410 12024	KEY UNIT MIDDLE ASSY BLACK /xx
3	4822 410 12025	KEY UNIT MIDDLE ASSY GREY /xxS
9	4822 410 11962	POWER BUTTON BLACK /xx
9	4822 410 11964	POWER BUTTON GREY /xxS
14	4822 459 10887	WORDMARK logo
15	4822 454 13339	CDRW - LOGO
65	4822 459 05101	TRAY FRONT LEFT ASSY BLACK /xx
65	4822 459 05104	TRAY FRONT LEFT ASSY GREY /xxS
81	4822 691 10737	CDR LOADER CDL3610/01
115	4822 459 05102	TRAY FRONT RIGHT ASSY BLACK /xx
115	4822 459 05105	TRAY FRONT RIGHT ASSY GREY /xxS
131	4822 691 10742	CD LOADER UNIT L1265/51
165	4822 442 01506	COVER
251	4822 462 42159	FOOT SILVER
252	4822 462 42159	FOOT SILVER
253	4822 462 42158	FOOT BLACK
254	4822 462 42158	FOOT BLACK
301⚠	4822 321 10249	SBC1201 MAINS CABLE EUROPE
301⚠	4822 321 10939	MAINS CORD USA
312	4822 321 11357	AUDIO CORD SET
313	4822 321 11357	AUDIO CORD SET
317	4822 321 61452	DIG OUT CABLE L=1000M M RCA
318	4822 219 10559	REMOTE CONTROL RC07110/01
1001	4822 214 12825	CDR MAINBOARD CDR765
1002⚠	4822 218 11938	POWER SUPPLY 20PS314/00
1002⚠	4822 218 11967	POWER SUPPLY 20PS314/17

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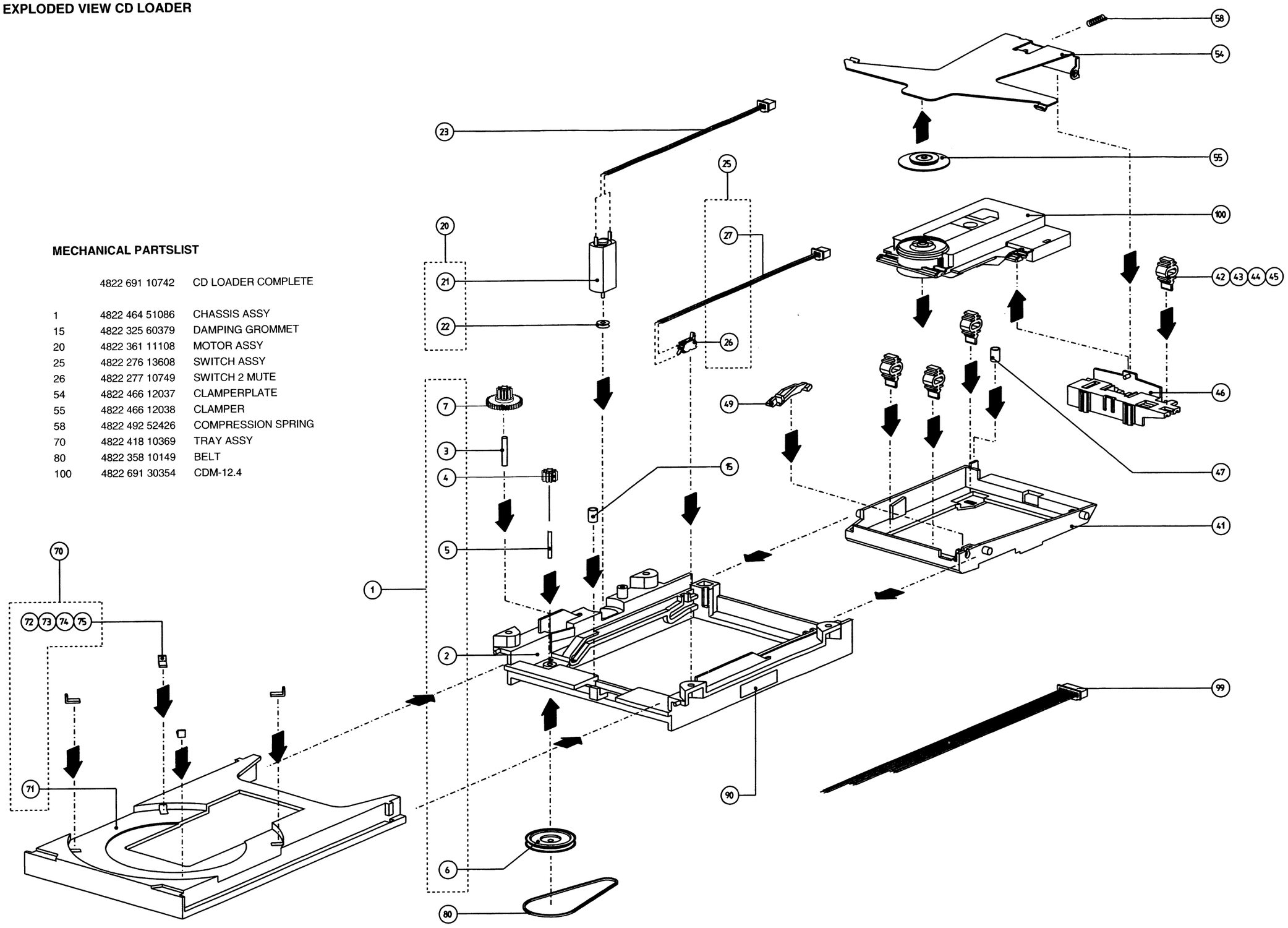
EXPLODED VIEW CD LOADER

MECHANICAL PARTSLIST

	4822 691 10742	CD LOADER COMPLETE
1	4822 464 51086	CHASSIS ASSY
15	4822 325 60379	DAMPING GROMMET
20	4822 361 11108	MOTOR ASSY
25	4822 276 13608	SWITCH ASSY
26	4822 277 10749	SWITCH 2 MUTE
54	4822 466 12037	CLAMPERPLATE
55	4822 466 12038	CLAMPER
58	4822 492 52426	COMPRESSION SPRING
70	4822 418 10369	TRAY ASSY
80	4822 358 10149	BELT
100	4822 691 30354	CDM-12.4



6-1

OVERALL BLOCKDIAGRAM

CDM 36

LOADER ASSY

Tray Motor

Tray Motor Control

Tray sense

MAIN BOARD
CDRW

7170

SERVO
MICRO
CONTROLLER

SPI

7320

USER
MICRO
CONTROLLER

DAIO

AD/DA

7323
RAM
32k

7322
ROM
512k

IIC

DSA

7300

IIS

DISPLAY ASSY

RC5

keys

7200

SLAVE
Display
CONTROLLER

7205

RECORD ERASE TRACK DUAL TRACK
FINALIZE CD SYNC SRC
DUBB 1 SHUFFLE SCAN SHUFFLE
AUTO TRACK TOTAL REM TRACK TIME TOTAL REM TRACK TIME
PAUSE DIG ANALOG OPT PROG REPEAT 1 PAUSE PROG REPEAT 1
CD REWRITABLE RECORDABLE COPY PROHIBIT

CDM Panel

DAC

EEPROM

Laser

Photo
Diodes

Focus
Radial
Sledge

Disc
Motor

Laser
Control
&
Timing

EFM

7245

CD
encoder
CDCEP

Wobble
processor

Analog
Signal
processor
Aeger

PPN

CA/HFM

7210 CL11

CD
Decoder
CD65

33,8688MHz

7130

Digital
servo
DSICR

7105

Digital
servo
driver

7650

DAC
TDA1305

7651

7652

7411

7645

DAI-O
TDA1315

7410

7405

ADC
SAA7366

7605

CD OUT

Analog out

Digital out

Analog output

Digital input

Optical input

Digital output

CONNECTOR
BOARD

Analog
input

CD
Microprocessor
S87C654

7240

DAC
TDA1305

7180

Servo
Decoder
SAA7372

CDM12.4

CD LOADER

HEADPHONE ASSY

Headphone output

+5V

+12V

- 8V

VFTD

DC1

DC2

POWER
SUPPLY
UNIT

ON/OFF

CD R/W LOADER

HAS1190
9822

PCS 98 768

6-2

SIGNALS AND ABBREVIATIONS

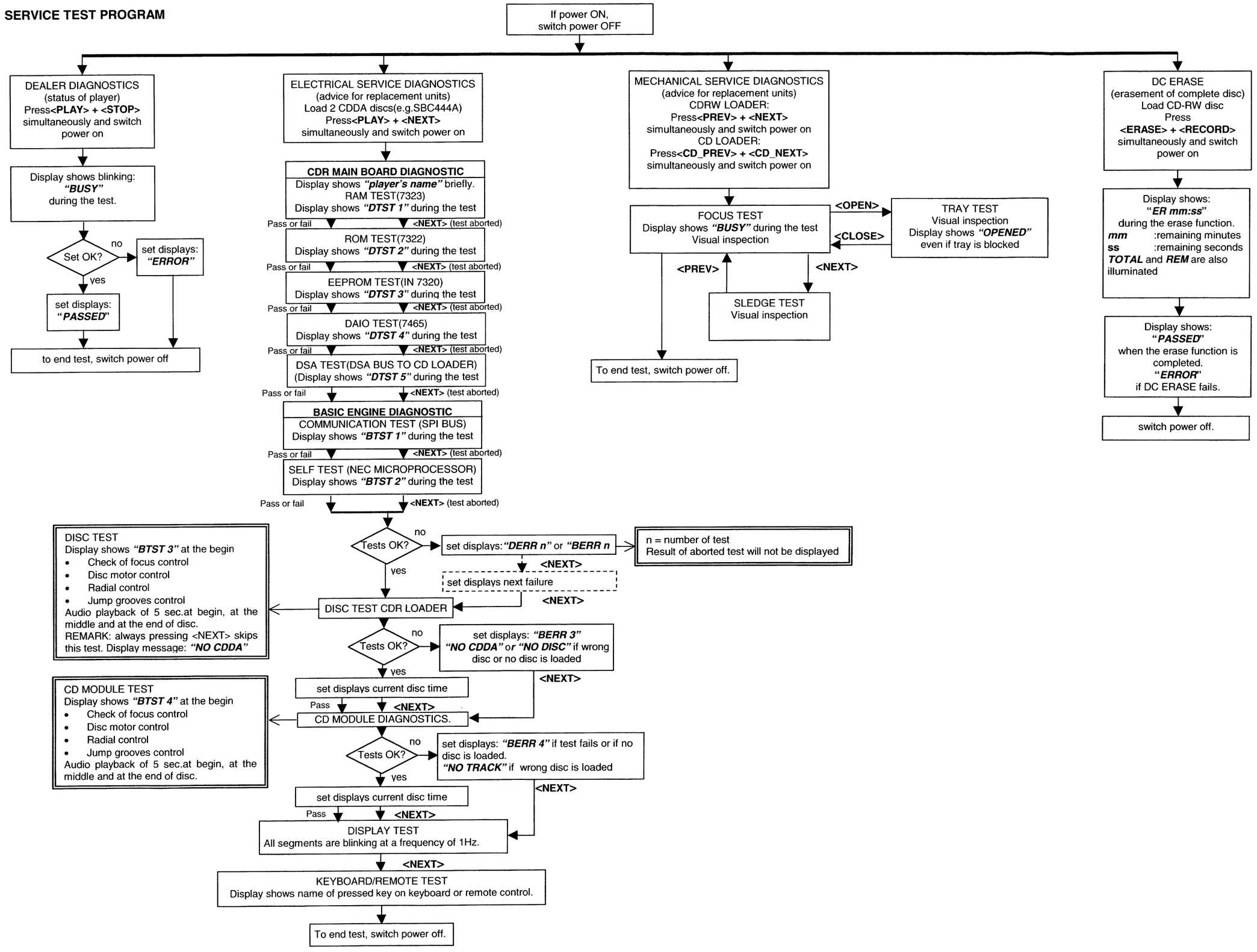
SIGNAL NAME	SIGNAL FLOW	FUNCTION AND DESCRIPTION
+12Va	Supply voltage	Single power supply +12V for op-amps 7150, 7235
+12Vb	Supply voltage	Power supply +12V for op-amps
+4V	Supply from CDR loader	Power supply +4V for servo microcontroller
+5Va	Supply voltage	Analog power supply +5V
+5Vb	Supply voltage	Digital power supply +5V
+5VDS	Supply voltage	Power supply +5V for Connector Part
+5VM	Supply voltage	Power supply turntable motor control circuit
-8Va	Supply voltage	Power supply -8V
A1A	IC7170→CONN.1101	Calculation β and HF0 Positive peak detector between CA and CALF
A2A	IC7170→CONN.1101	Beta = (A1-A2)/(A1+A2) Negative peak detector between CA and CALF
ACK	IC7320↔R3904(IC7170)	Acknowledge serial communication user microprocessor
AD[0:18]	IC7320→IC7322 IC7320→IC7323	External address bus of user processor
ADC		Analog/Digital Converter
ANACD	IC7320→IC7605	Control signal dubbing analog for protected tracks
ANAIN1	IC7320→IC7601	Control signal level setting analog input
ANAIN2	IC7320→IC7601	Control signal level setting analog input
ATSB	IC7320→IC7650	Attenuation 12 dB of DAC(active low) during search
BS	IC7320→IC7440	Block synchronisation
CA	CONN.1101→R3299	Central Aperture(C1+C2+C3+C4)DC →for Mod. calculation
CALF	IC7170→CONN.1101	CA low frequency
CD60		Decoder
CD60CLK	IC7210→IC7403	I2S clock from CD60
CD60WS	IC7210→IC7403	I2S word select from CD60
CDAICL	IC7320→IC7465	DAI-O interface clock
CDAIDA	IC7320↔IC7465	DAI-O interface data
CDAILD	IC7320→IC7465	DAI-O interface mode
CDCEP		CD-Circ Efm Encoder Plus
CDE	IC7170→R3255	CD erase
CDTRAYO	IC7320→CONN1380	CD loader tray open (CDR765) (not used)
CDTRAYC	IC7320→CONN1380	CD loader tray closed (CDR765) (not used)
CE_INT	IC7170←IC7245	CDCEP interrupt
CFLG	IC7210→CONN.1250	Correction flag output(CD60)
CL11	IC7210→IC7411	11.2896 MHz systemclock for ADC/DAC
CL16	IC7210→IC7241	164344 MHz systemclock (not used)
CLCE	IC7170→IC7245	µP clock output encoder(CD60)
CLDAIO	IC7465→IC7411	Clock output DAIO
CLDE	IC7170→IC7210	µP clock output decoder(CD60)
CLDS	IC7170→IC7130	µP clock output DSICR
CLKC0	IC7241→CONN1360	System clock for CD player (CDR765)
CLKCDCEP	IC7260→IC7245	I2S clock to CDCEP
CLKN2	CONN1360→IC7260	I2S clock from CD player (CDR765)
CLKQ	IC7245→IC7240 IC7245→IC7241	PLL clock output from encoder
CLKQD	IC7241→IC7240	CLKQ divided by 2
CLO3	IC7440→IC7411	GDIN clock3 out: system clock for DAC (option)
CLWP	IC7170→IC7245	µP clock Atip information CDCEP
COMCLK	IC7320↔R3165(IC7170)	Communication clock for data transfer from user microprocessor
COMSYNC	IC7320↔IC7170	Communication synchronisation from user microprocessor
CRIN	IC7440→IC7210	GDIN clock1 out: system clock for decoder CD60 (option)
CSRAM	IC7320→IC7323	Chip Select RAM
CSROM	IC7320→IC7322	Chip Select ROM
D[0:7]	IC7320↔IC7322 IC7320↔IC7323 IC7320↔IC7324	Data bus
DAC		Digital/Analog Converter
DACDCEP	IC7260↔IC7245	I2S data to CDCEP
DACE	IC7170→IC7245	µP data I/O CDCEP
DACL	IC7170→CONN.1102	DAC clock
DADE	IC7170→IC7210	uP data CDLIP
DADI	IC7170→CONN.1102	DAC data in (CDM)
DADS	IC7170→IC7130	µP data I/O DSICR
DAIN	IC7465↔IC7245	Data signal(CDCEP)
DAI-O		Digital Audio Input/Output
DAIO_REC	IC7325→IC7403	high during recording from digital in source, low to prevent conflict in IIS bus during playback and analog recording(option)
DALD	IC7170→CONN.1102	DAC load(CDM)
DAN2	CONN1360↔IC7260	I2S data from CD player (CDR765)
DAOUT	R3217(IC7210)→IC7403	I2S data output(CD60)
DATADIR	IC7320→IC7403	Data direction: control signal, HIGH during playback
DAWP	IC7170→IC7245	µP data Atip information(CDCEP)
DEEM1	IC7320→IC7650	Deemphasis active(44.1 kHz sample rate)
DIGIN	IC7410→IC7465 IC7410→IC7440	Digital input signal to DAIO and GDIN
DIGINEXT	CONN1400→IC7410	Digital input
DIGOUT	IC7465→CONN.1400	Digital output
DIGSW1	IC7320→IC7410	Control signal for digital input/output selection
DIGSW2	IC7320→IC7410	Control signal for digital input/output selection
DSA_ACK	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
DSA_DATA	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
DSA_STROBE	IC7320→CONN1360	Data/strobe/acknowledge serial communication from USER uP to CD player (CDR765)
DSICR		Digital Servo IC Recordable
EBUCD60	IC7210→IC7410	Digital out signal from CD60
EBUDAIO	IC7465→IC7410	Digital out signal from DAIO
EBUININT	CONN1360→IC7410	Digital input from CD player (CDR765)
EECL	IC7170→CONN.1102	EEPROM clock
EEDA	IC7170↔CONN.1102	EEPROM data
EFM	IC7245→IC7205	Eight to Fourtheen Modulation CDCEP output for monitoring (reduced voltage from CD60 to MONON)
EFMCLK	IC7245→CONN.1102	EFM clock 4.3218 or 8.6436 MHz
EFMM	IC7245→CONN.1102	EFM N-1
FEN	CONN.1101→IC7130	Focus Error Normalized = (C1 + C3 - C2 - C4)/(C1 + C2 + C3 + C4)
FEOFS	IC7170→R3133	Focus Error OFF Switch
FOC-	IC7105→CONN.1101	Focus actuator negative connection
FOC+	IC7105→CONN.1101	Focus actuator positive connection
FS	CONN.1102→R3152	FS = FS0 - DALFA(write power to laser control)
FSM	CONN.1102→D6155	Focused sense monitor
GDIN		General Digital Input (option)
GDINCL	IC7320→IC7440	GDIN interface clock
GDINDA	IC7320↔IC7440	GDIN interface data
GDINLD	IC7320→IC7440	GDIN interface mode
HALL_U, V, W	IC7170→IC7270 IC7170→IC7280	Hall element U, V, W of motor

HMSW	CONN.1101→IC7170	Home Switch
IISCLK	IC7603→IC7465 IC7603→IC7245 IC7403→IC7650	I2S-BUS clock
IISWS	R3219(IC7210)→IC7403	I2S-BUS word select
INTSLAVE	CONN1330→IC7320	Slave processor interrupt
KILL	T7446→R3671,3672	Kill signal to mute analog output signal
KILL_OUT	IC7320→R3473	Control signal to activate Kill signal
LDCE	IC7170←IC7245	µP load input(from CDCEP)
LDDE	IC7170→IC7210	µP load output decoder
LDDS	IC7170→IC7130	µP load output DSICR
LDON	IC7130→CONN.1102 IC7105→CONN.1102	Laser Diode ON(on read)
LEFTOUT	C2497→CONN.1400 C2497→CONN.1420 C2497→C2300	Analog left output
LWRT	IC7245→CONN.1102	Laser at writing power
MIRN	CONN.1101→IC7130	Mirror normalized
MISO	IC7320↔R3168(IC7170) IC7320↔CONN.1300	Master in, Slave out: data from Basic Engine to USER.
MONON	IC7170→IC7205	Monitoring EFM from CDCEP to CD60
MOSI	IC7320↔R3903(IC7170) IC7320↔CONN.1300	Master out, Slave in : data from USER to Basic Engine
MOTO1	IC7210→IC7170	Control signal for motor
MPWM	IC7170→IC7245	Motor Pulse Width Modulation
N=2	IC7320→IC7260	Control signal to close switch when dubbing (n = 2 !)
N2	IC7170→IC7240 IC7170→IC7205	N = high(double speed)
N4	IC7170→IC7205	N = high(fourfold speed)
NCLOSE	IC7170→R3196	Tray close (CDR loader)
NIRQ	IC7170→IC7245	Interrrupt request wobble processing(CDCEP)
NMUTE	IC7320→IC7650	Mute signal (active low)
NOPEN	IC7170→R3181	Tray open (CDR loader)
NRSMP	IC7245→CONN.1102	None read sample
OPTIN	CONN.1400→IC7440 CONN.1400→IC7465	Optical input
OTD	IC7130→IC7170	Off track dectection DISCR
OVLD	IC7603→IC7320	Overload flag input
PP	CONN.1101→C2231	XB or PPN(read or write)
PWM	IC7170→R3268	Pulse width modulation
R/W	IC7320→IC7324	µP read/write signal
RAD-	IC7105→CONN.1101	Radial actuator negative connection
RAD+	IC7105→CONN.1101	Radial actuator positive connection
RADINT	IC7170→R3111	Radial actuator integrator voltage.
REN	CONN.1101	Radial Error Normalized
RENSW	IC7170→R3124	Radial Error Normalized switch
RESEN	IC7170→IC7245 IC7170→IC7130	Reset encoder(CDCEP) and digital servo(DSICR)
RESET	IC7170→IC7210	Reset decoder CD60
RIGHTOUT	C2498→CONN.1400 C2498→CONN.1420 C2498→C2303	Analog right output
RSTHA	IC7325→IC7465	Reset high active, reset for DAIO

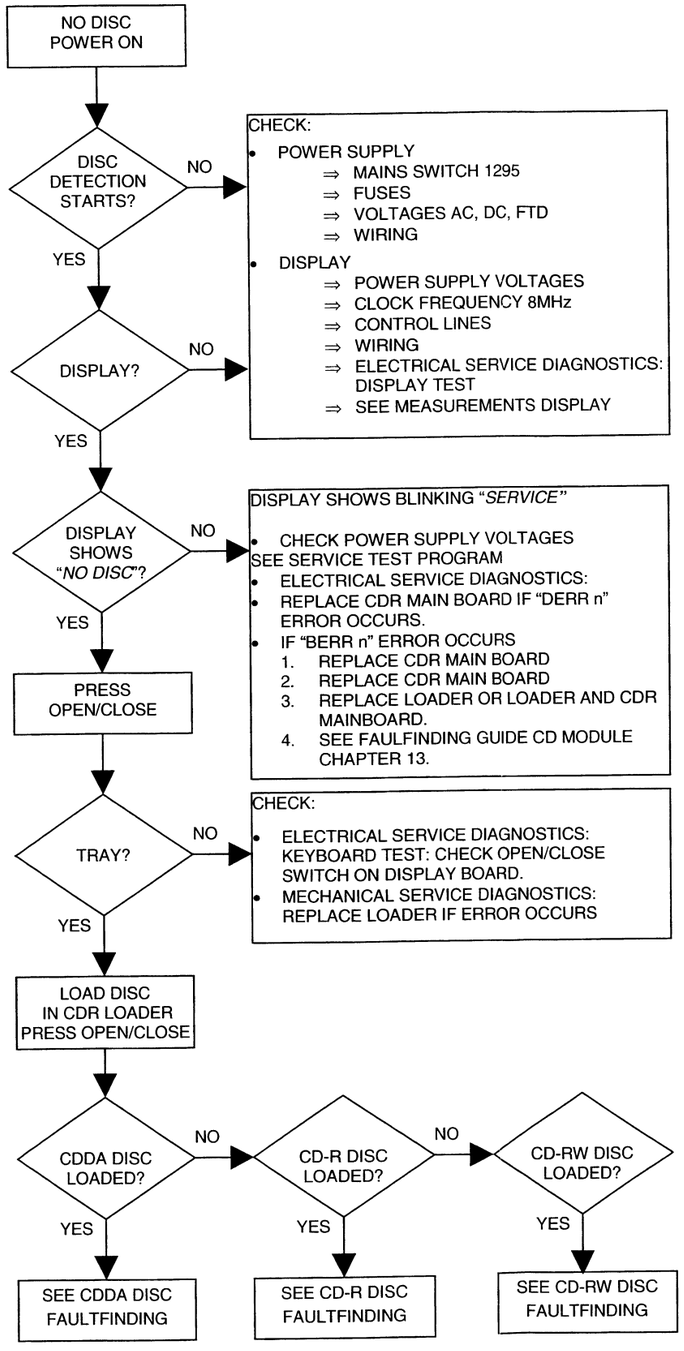
RSTIN	IC7320→IC7325	Reset microcontroller(from user μP)
RSTLA	IC7325→IC7440 IC7325→IC7170 IC7325→D6130 IC7325→CONN.1330	Reset low active, reset for GDIN, servo uP, DSD3, DSICR and display.
RXD	IC7320↔IC7325	Receive data of serial interface
SCL	IC7320↔L5300	I2C-bus clock for communication
SCLI	IC7320→T7326	I2C-bus clock Input to check "busy" of slave
SDA	IC7320↔L5300	I2C-bus data to display driver
SDAUX	IC7603→IC7440	Analog to digital converted data from ADC to DAI-O
SL-	IC7105→CONN.1101	Sledge motor negative connection
SL+	IC7105→CONN.1101	Sledge motor positive connection
STROBE	IC7320→IC7465 IC7320→CONN.1302	Control signal for DAI-O : data strobe
SWRT	IC7245→CONN.1102	Start Write 9ms(one shot at start up LWRT)
SYSCKLSW2	IC7320→IC7411	Control signal for system clock selection
SYSCLKSW1	IC7320→IC7411	Control signal for system clock selection
SYSSYNC	IC7170→CONN.1135	System synchronization
TLN	CONN.1101→IC7130	Track Loss Normalized
TRAYSW	CONN1380→IC7320	Control signal from CD loader (CDR765)
TRS1N	IC7170→CONN.1103	Tray sense
TXD	IC7320↔IC7325	Transmit data serial interface
UDAVAIL	IC7320→IC7465	User-data available
UNLOCK	IC7465→IC7320	Not locked on incoming EBU-signal
UNLOCK_GDIN	IC7323→R3435	Unlock signal to GDIN
V4	IC7210→CONN.1250	Versatile pin 4
VDC1	Supply voltage	Filament voltage for display
VDC2	Supply voltage	Filament voltage for display
VFTD	Supply voltage	Power supply for display
WCLK	IC7210→IC7245	Word clock
WSCDCEP	IC7260→IC7245	I2S word select to CDCEP
WSN2	CONN1360→ IC7260	I2S word select from CD player (CDR765)

7-1

SERVICE TEST PROGRAM

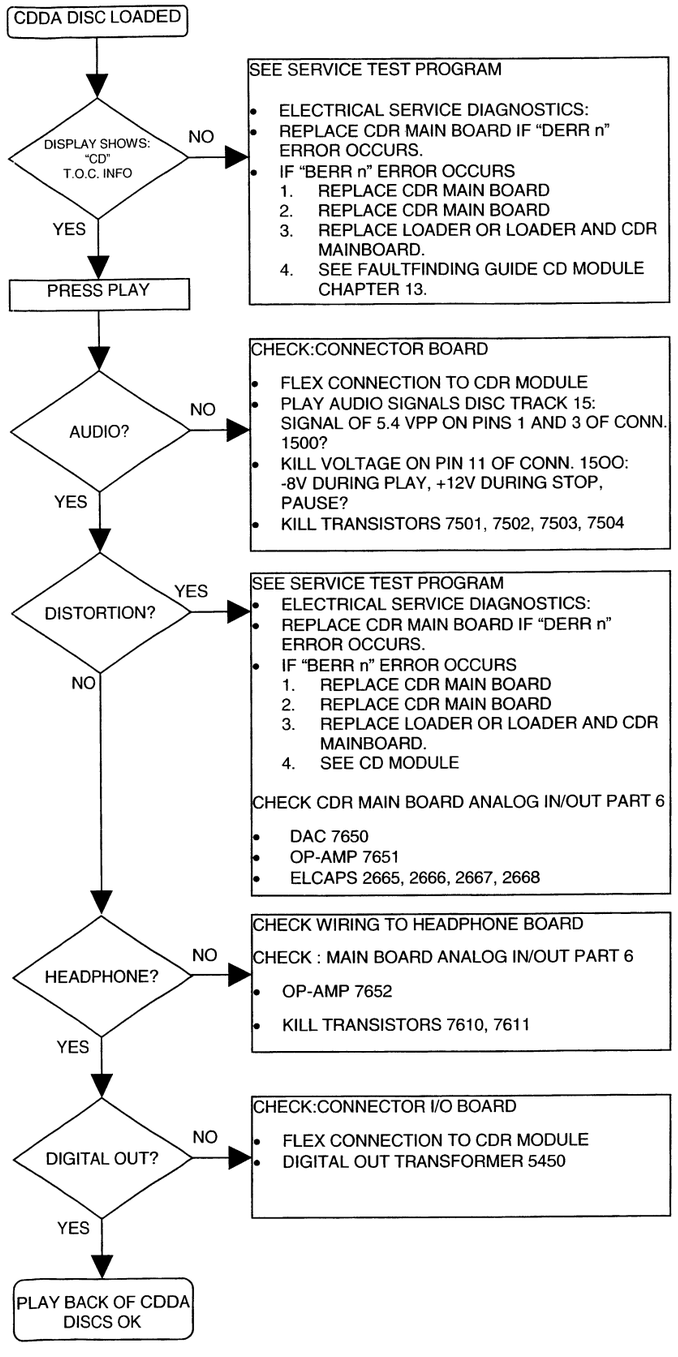

If power ON, switch power OFF
DEALER DIAGNOSTICS (status of player) Press<PLAY> + <STOP> simultaneously and switch power on
Display shows blinking: "BUSY" during the test.
Set OK?
no
set displays: "ERROR"
yes
set displays: "PASSED"
to end test, switch power off
ELECTRICAL SERVICE DIAGNOSTICS (advice for replacement units) Load 2 CDDA discs(e.g.SBC444A) Press<PLAY> + <NEXT> simultaneously and switch power on
CDR MAIN BOARD DIAGNOSTIC
Display shows "player's name" briefly.
RAM TEST(7323)
Display shows "DTST 1" during the test
Pass or fail
<NEXT> (test aborted)
ROM TEST(7322)
Display shows "DTST 2" during the test
EEPROM TEST(IN 7320)
Display shows "DTST 3" during the test
DAIO TEST(7465)
Display shows "DTST 4" during the test
DSA TEST(DSA BUS TO CD LOADER)
(Display shows "DTST 5" during the test
BASIC ENGINE DIAGNOSTIC
COMMUNICATION TEST (SPI BUS)
Display shows "BTST 1" during the test
SELF TEST (NEC MICROPROCESSOR)
Display shows "BTST 2" during the test
Tests OK?
no
set displays: "DERR n" or "BERR n
n = number of test
Result of aborted test will not be displayed
<NEXT>
set displays next failure
yes
DISC TEST CDR LOADER
DISC TEST
Display shows "BTST 3" at the begin
Check of focus control
Disc motor control
Radial control
Jump grooves control
Audio playback of 5 sec.at begin, at the middle and at the end of disc.
REMARK: always pressing <NEXT> skips this test. Display message: "NO CDDA"
Tests OK?
no
set displays: "BERR 3" "NO CDDA" or "NO DISC" if wrong disc or no disc is loaded
yes
set displays current disc time
Pass
CD MODULE DIAGNOSTICS.
CD MODULE TEST
Display shows "BTST 4" at the begin
Check of focus control
Disc motor control
Radial control
Jump grooves control
Audio playback of 5 sec.at begin, at the middle and at the end of disc.
Tests OK?
no
set displays: "BERR 4" if test fails or if no disc is loaded.
"NO TRACK" if wrong disc is loaded
yes
set displays current disc time
Pass
DISPLAY TEST
All segments are blinking at a frequency of 1Hz.
KEYBOARD/REMOTE TEST
Display shows name of pressed key on keyboard or remote control.
To end test, switch power off.
MECHANICAL SERVICE DIAGNOSTICS (advice for replacement units) CDRW LOADER: Press<PREV> + <NEXT> simultaneously and switch power on CD LOADER: Press<CD_PREV> + <CD_NEXT> simultaneously and switch power on
FOCUS TEST
Display shows "BUSY" during the test
Visual inspection
<OPEN>
<CLOSE>
TRAY TEST
Visual inspection
Display shows "OPENED" even if tray is blocked
<PREV>
<NEXT>
SLEDGE TEST
Visual inspection
To end test, switch power off.
DC ERASE (erasement of complete disc) Load CD-RW disc Press <ERASE> + <RECORD> simultaneously and switch power on
Display shows: "ER mm:ss" during the erase function.
mm :remaining minutes
ss :remaining seconds
TOTAL and REM are also illuminated
Display shows: "PASSED" when the erase function is completed.
"ERROR" if DC ERASE fails.
switch power off.

FAULTFINDING GUIDE

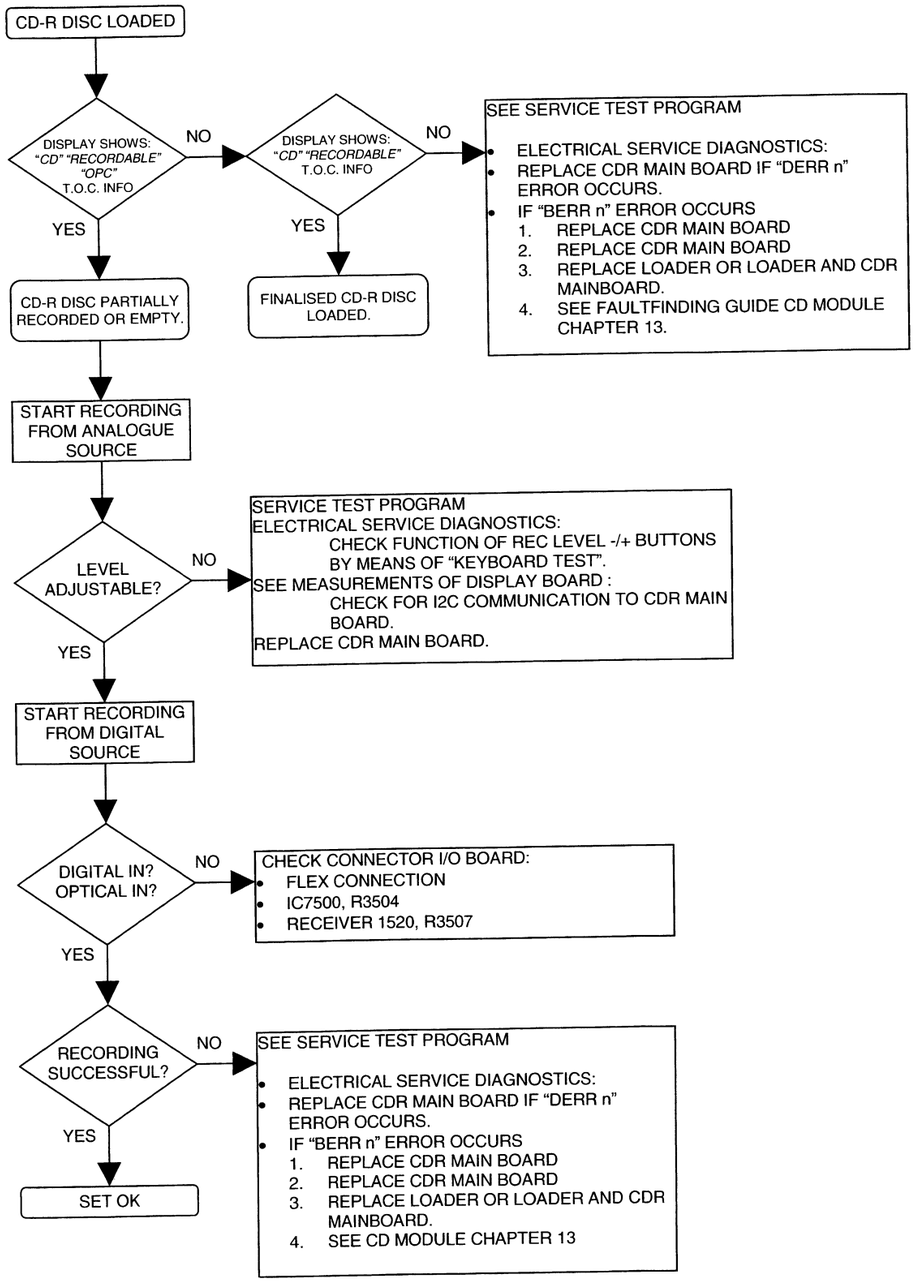


7-2

CDDA DISC FAULTFINDING GUIDE

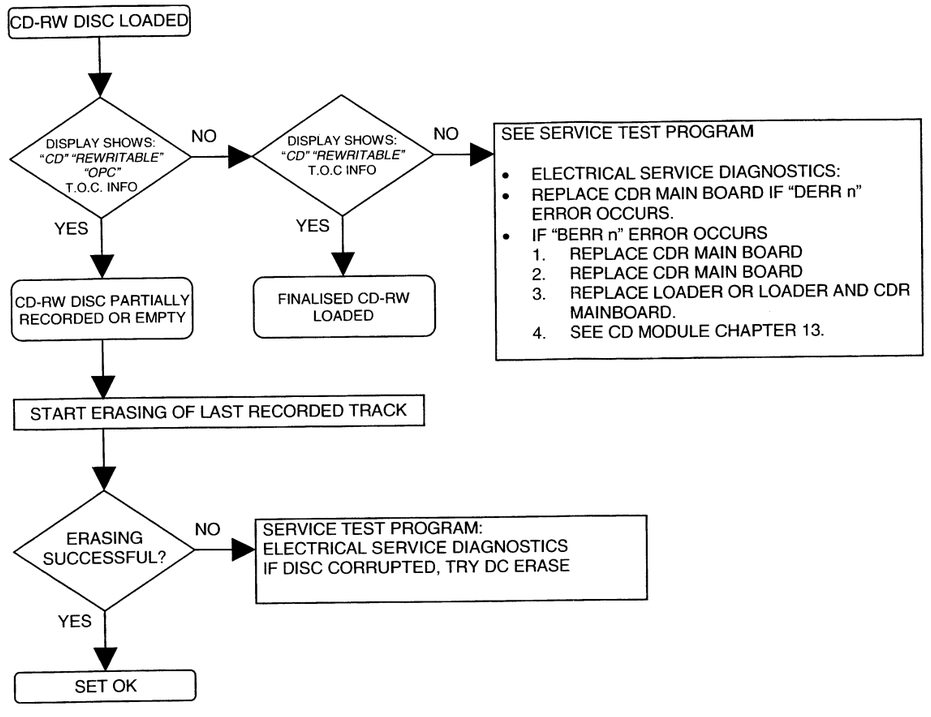

CDDA DISC LOADED
DISPLAY SHOWS: "CD" T.O.C. INFO
NO
SEE SERVICE TEST PROGRAM
• ELECTRICAL SERVICE DIAGNOSTICS:
• REPLACE CDR MAIN BOARD IF "DERR n" ERROR OCCURS.
• IF "BERR n" ERROR OCCURS
1. REPLACE CDR MAIN BOARD
2. REPLACE CDR MAIN BOARD
3. REPLACE LOADER OR LOADER AND CDR MAINBOARD.
4. SEE FAULTFINDING GUIDE CD MODULE CHAPTER 13.
YES
PRESS PLAY
AUDIO?
NO
CHECK:CONNECTOR BOARD
• FLEX CONNECTION TO CDR MODULE
• PLAY AUDIO SIGNALS DISC TRACK 15: SIGNAL OF 5.4 VPP ON PINS 1 AND 3 OF CONN. 1500?
• KILL VOLTAGE ON PIN 11 OF CONN. 15OO: -8V DURING PLAY, +12V DURING STOP, PAUSE?
• KILL TRANSISTORS 7501, 7502, 7503, 7504
YES
DISTORTION?
YES
SEE SERVICE TEST PROGRAM
• ELECTRICAL SERVICE DIAGNOSTICS:
• REPLACE CDR MAIN BOARD IF "DERR n" ERROR OCCURS.
• IF "BERR n" ERROR OCCURS
1. REPLACE CDR MAIN BOARD
2. REPLACE CDR MAIN BOARD
3. REPLACE LOADER OR LOADER AND CDR MAINBOARD.
4. SEE CD MODULE
CHECK CDR MAIN BOARD ANALOG IN/OUT PART 6
• DAC 7650
• OP-AMP 7651
• ELCAPS 2665, 2666, 2667, 2668
NO
HEADPHONE?
NO
CHECK WIRING TO HEADPHONE BOARD
CHECK : MAIN BOARD ANALOG IN/OUT PART 6
• OP-AMP 7652
• KILL TRANSISTORS 7610, 7611
YES
DIGITAL OUT?
NO
CHECK:CONNECTOR I/O BOARD
• FLEX CONNECTION TO CDR MODULE
• DIGITAL OUT TRANSFORMER 5450
YES
PLAY BACK OF CDDA DISCS OK

CD-R DISC FAULTFINDING


CD-R DISC LOADED
DISPLAY SHOWS: "CD" "RECORDABLE" "OPC" T.O.C. INFO
NO
DISPLAY SHOWS: "CD" "RECORDABLE" T.O.C. INFO
NO
SEE SERVICE TEST PROGRAM
• ELECTRICAL SERVICE DIAGNOSTICS:
• REPLACE CDR MAIN BOARD IF "DERR n" ERROR OCCURS.
• IF "BERR n" ERROR OCCURS
1. REPLACE CDR MAIN BOARD
2. REPLACE CDR MAIN BOARD
3. REPLACE LOADER OR LOADER AND CDR MAINBOARD.
4. SEE FAULTFINDING GUIDE CD MODULE CHAPTER 13.
YES
YES
CD-R DISC PARTIALLY RECORDED OR EMPTY.
FINALISED CD-R DISC LOADED.
START RECORDING FROM ANALOGUE SOURCE
LEVEL ADJUSTABLE?
NO
SERVICE TEST PROGRAM
ELECTRICAL SERVICE DIAGNOSTICS:
CHECK FUNCTION OF REC LEVEL -/+ BUTTONS BY MEANS OF "KEYBOARD TEST".
SEE MEASUREMENTS OF DISPLAY BOARD :
CHECK FOR I2C COMMUNICATION TO CDR MAIN BOARD.
REPLACE CDR MAIN BOARD.
YES
START RECORDING FROM DIGITAL SOURCE
DIGITAL IN? OPTICAL IN?
NO
CHECK CONNECTOR I/O BOARD:
• FLEX CONNECTION
• IC7500, R3504
• RECEIVER 1520, R3507
YES
RECORDING SUCCESSFUL?
NO
SEE SERVICE TEST PROGRAM
• ELECTRICAL SERVICE DIAGNOSTICS:
• REPLACE CDR MAIN BOARD IF "DERR n" ERROR OCCURS.
• IF "BERR n" ERROR OCCURS
1. REPLACE CDR MAIN BOARD
2. REPLACE CDR MAIN BOARD
3. REPLACE LOADER OR LOADER AND CDR MAINBOARD.
4. SEE CD MODULE CHAPTER 13
YES
SET OK

7-3

CD-RW DISC FAULTFINDING


CD-RW DISC LOADED
DISPLAY SHOWS: "CD" "REWRITABLE" "OPC" T.O.C. INFO
NO
DISPLAY SHOWS: "CD" "REWRITABLE" T.O.C INFO
NO
SEE SERVICE TEST PROGRAM
• ELECTRICAL SERVICE DIAGNOSTICS:
• REPLACE CDR MAIN BOARD IF "DERR n" ERROR OCCURS.
• IF "BERR n" ERROR OCCURS
1. REPLACE CDR MAIN BOARD
2. REPLACE CDR MAIN BOARD
3. REPLACE LOADER OR LOADER AND CDR MAINBOARD.
4. SEE CD MODULE CHAPTER 13.
YES
YES
CD-RW DISC PARTIALLY RECORDED OR EMPTY
FINALISED CD-RW LOADED
START ERASING OF LAST RECORDED TRACK
ERASING SUCCESSFUL?
NO
SERVICE TEST PROGRAM:
ELECTRICAL SERVICE DIAGNOSTICS
IF DISC CORRUPTED, TRY DC ERASE
YES
SET OK

7-4

MEASUREMENTS DISPLAY PANEL

1. Measurement of voltage supplies.

Several voltages arrive at the display PCB.
Measurements and limits.

Voltage	Nominal value	Limits
VFTD	-26V	±5%
VDC1-DC2	3.5V	±10%
Vb	5V	±5%

2. Measurement of oscillator.

As clock driver for the display controller a resonator of 8Mhz is used.
The clock frequency is available at pin 8 of the display controller.
Check the frequency of 8Mhz ±5%.

3. Checking the control lines.

There are several lines which are inputs to the display controller and others which are outputs, these lines have to be checked to guarantee basic functionality.

RESETN:

This line should be kept low during power up for at least 3 machine cycles,with supply voltage within the operating range and oscillation stable.1 machine cycle = 12 X 1/Fc (8Mhz) Sec.

SDA and SCL:

The level on these two lines must be checked. When there is no communication they should have the 'High' level.

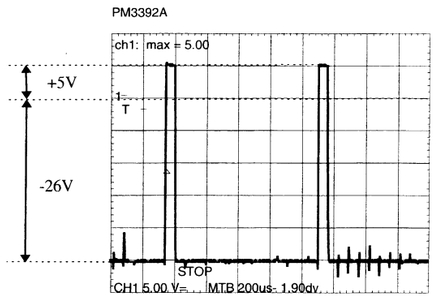
INTERRUPT:

The interrupt line is an output for the display controller. Check if this level is high after reset, no key pressed and no RC5 coming in.
Low pulses will be present when a key is pressed or when receiving RC5 commands from remote control.

Key matrix lines:

Check if at I/O port 4 of the controller all pins are high.(No keys pressed).(Pin 26 to 33). If not check respective pull-up resistors.

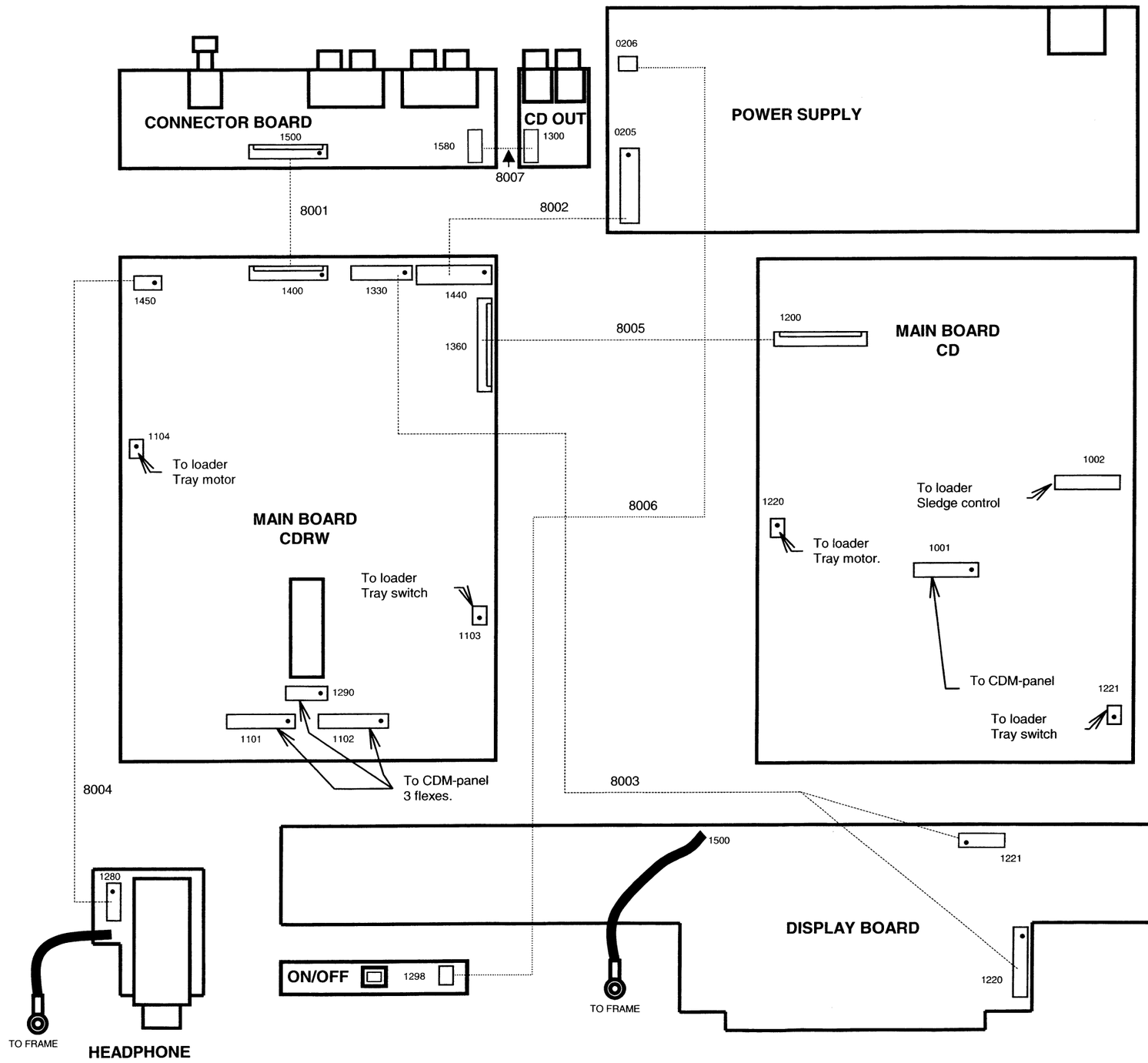
4. Operation of grid and segment control lines.



This figure shows the signal generated by the display processor on one of the grid lines. The level on the grid line changes from -26V to +5V.

The grid lines are scanned successively about every 950 µsec.

WIRING DIAGRAM



8-1

Pin 1 indicated by All Wires are 1/1.

8001

1	RIGHTOUT!
2	GROUND
3	LEFTOUT!
4	LEFTIN!
5	GROUND
6	RIGHTIN!
7	GROUND
8	+5Vb!
9	LEFT2!
10	GROUND
11	KILL!
12	RIGHT2!
13	GROUND
14	DIGOUT!
15	DIGINEXT!
16	GROUND
17	OPTIN!
18	GROUND
19	EBUININT!
20	GROUND

8002

1	+5Vb!
2	+5VM!
3	+5Vb!
4	GROUND
5	GROUND
6	VDC2!
7	VFTD!
8	GROUND
9	+12V!
10	-8V!
11	VDC1!

8003

1	SDA! 1
2	SCL! 2
3	RSTLA! 3
4	GROUND 4
5	INTSLAVE! 5
6	VDC1! 6
7	VFTD! 1'
8	VDC2! 2'
9	+5Vb! 3'
10	GROUND 4'

8004

1	HPLEFT!
2	GROUND
3	HPRIGHT!

8005

1	GROUND
2	DSA_DATA!
3	GROUND
4	DSA_STROBE!
5	DSA_ACK!
6	GROUND
7	+5Vb!
8	+12Vb!
9	GROUND
10	CLKN2!
11	WSN2!
12	GROUND
13	DAN2!
14	GROUND
15	EBUININT!
16	LSTHA!
17	LEFT2!
18	GROUND
19	RIGHT2!
20	GROUND
21	CLKCD!
22	GROUND

8006

1	ON!
2	OFF!

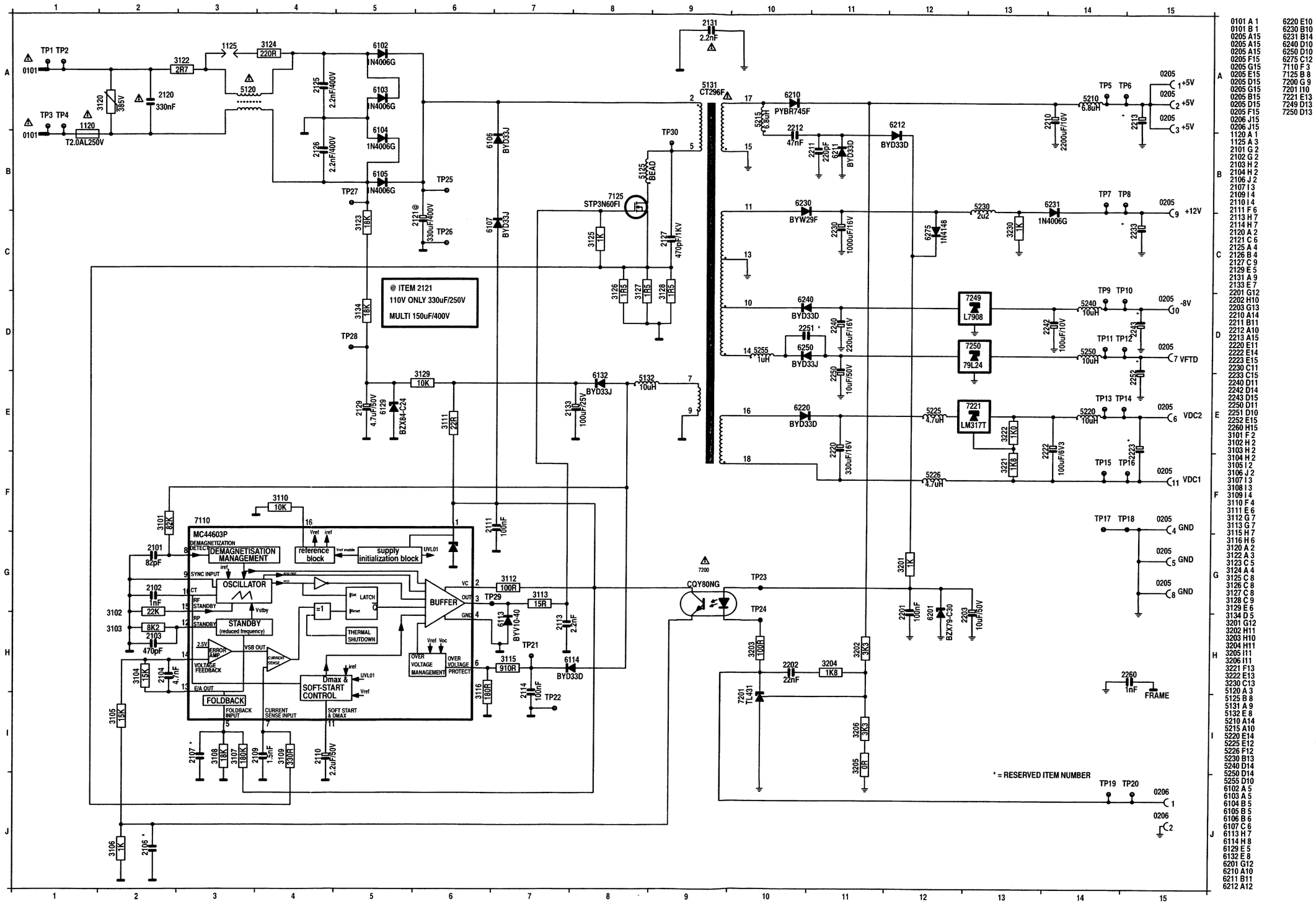
8007

1	LEFT2!
2	GND
3	RIGHT2!
4	DIGININT!
5	GND
6	KILL!

HAS1189
9820

9-1

POWER SUPPLY UNIT CIRCUIT DIAGRAM



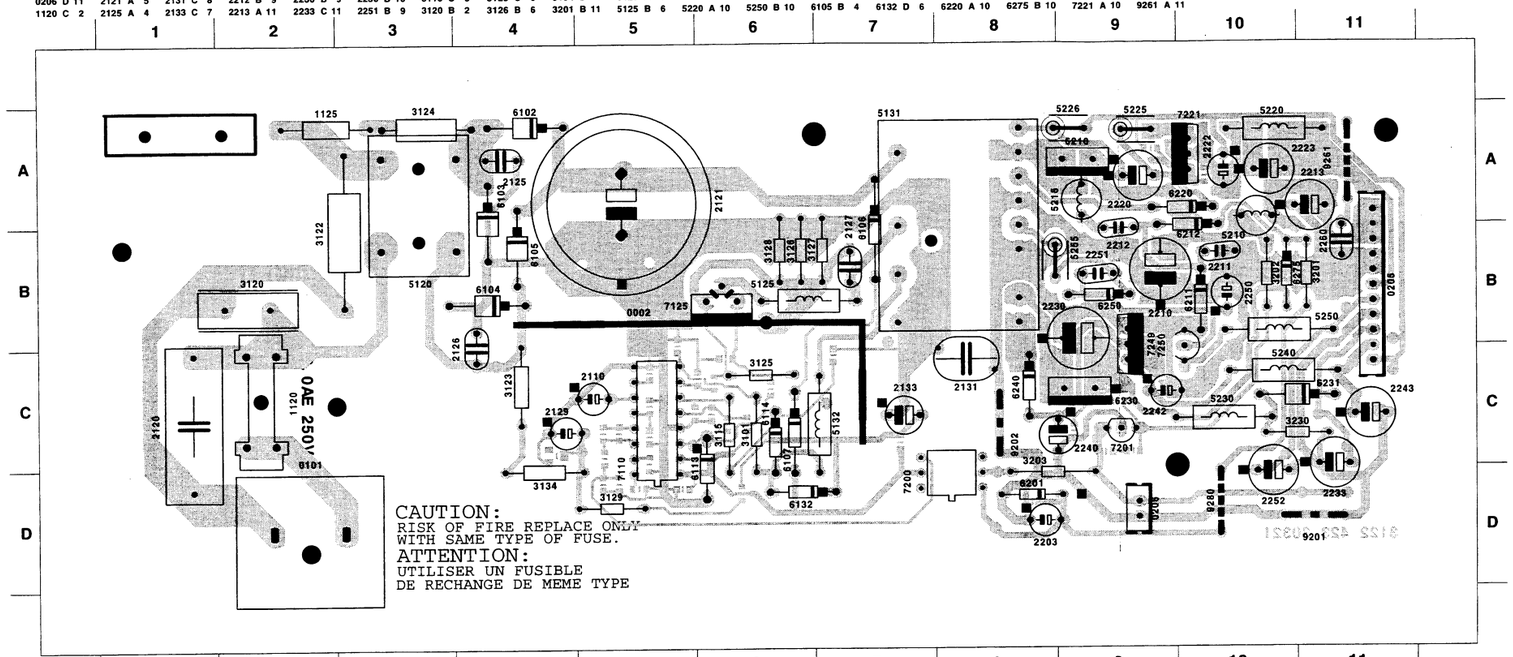
0101 A 1
0101 B 1
0205 A15
0205 A15
0205 A15
0205 F15
0205 G15
0205 E15
0205 D15
0205 G15
0205 B15
0205 D15
0205 F15
0206 J15
0206 J15
1120 A 1
1125 A 3
2101 G 2
2102 G 2
2103 H 2
2104 H 2
2106 J 2
2107 I 3
2109 I 4
2110 I 4
2111 F 6
2113 H 7
2114 H 7
2120 A 2
2121 C 6
2125 A 4
2126 B 4
2127 C 9
2129 E 5
2131 A 9
2133 E 7
2201 G12
2202 H10
2203 G13
2210 A14
2211 B11
2212 A10
2213 A15
2220 E11
2222 E14
2223 E15
2230 C11
2233 C15
2240 D11
2242 D14
2243 D15
2250 D11
2251 D10
2252 E15
2260 H15
3101 F 2
3102 H 2
3103 H 2
3104 H 2
3105 I 2
3106 J 2
3107 I 3
3108 I 3
3109 I 4
3110 F 4
3111 E 6
3112 G 7
3113 G 7
3115 H 7
3116 H 6
3120 A 2
3122 A 3
3123 C 5
3124 A 4
3125 C 8
3126 C 8
3127 C 8
3128 C 9
3129 E 6
3134 D 5
3201 G12
3202 H11
3203 H10
3204 H11
3205 I11
3206 I11
3221 F13
3222 E13
3230 C13
5120 A 3
5125 B 8
5131 A 9
5132 E 8
5210 A14
5215 A10
5220 E14
5225 E12
5226 F12
5230 B13
5240 D14
5250 D14
5255 D10
6102 A 5
6103 A 5
6104 B 5
6105 B 5
6106 B 6
6107 C 6
6113 H 7
6114 H 8
6129 E 5
6132 E 8
6201 G12
6210 A10
6211 B11
6212 A12

6220 E10
6230 B10
6231 B14
6240 D10
6250 D10
6275 C12
7110 F 3
7125 B 8
7200 G 9
7201 I10
7221 E13
7249 D13
7250 D13

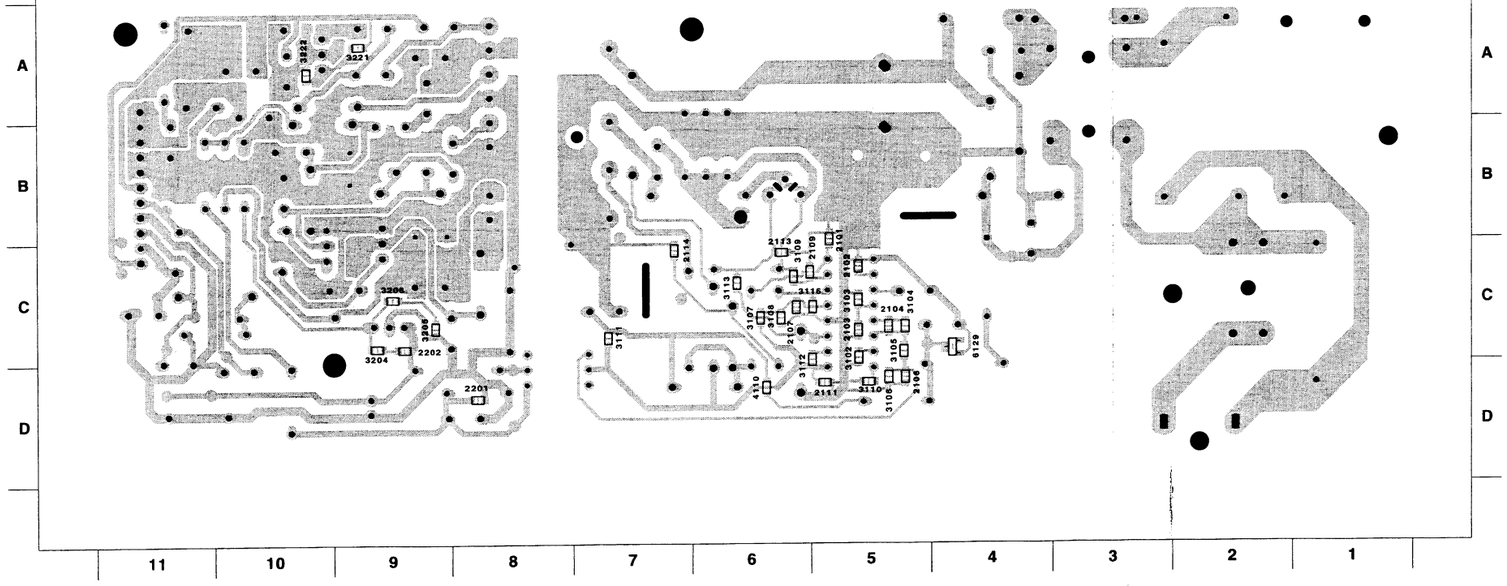
9-2

POWER SUPPLY UNIT BOARD

0002 B 6 1125 A 2 2126 B 4 2203 D 8 2220 A 9 2240 C 9 2252 D 10 3122 B 3 3127 B 7 3202 B 10 5131 B 8 5225 A 9 5255 B 8 6106 B 7 6201 D 8 6230 C 9 7110 C 5 7249 C 9 9280 D 10
0101 D 2 2110 C 5 2127 B 7 2210 B 9 2222 A 10 2242 C 9 2260 B 11 3123 C 4 3128 B 6 3203 D 8 5132 C 7 5226 A 9 6102 A 4 6107 C 6 6211 B 10 6240 C 8 7125 B 6 7200 D 8 7250 C 10 9201 D 11
0205 B 11 2120 C 1 2129 C 4 2211 B 10 2223 A 10 2243 C 11 3101 C 6 3124 A 3 3129 D 5 3230 C 10 5210 A 10 5230 C 10 6103 A 4 6113 D 6 6212 B 10 6250 B 9 7201 C 9 9202 C 8
0206 D 11 2121 A 5 2131 C 8 2212 B 9 2230 B 9 2250 B 10 3115 C 6 3125 C 6 3134 D 4 5120 A 3 5215 A 9 5240 C 10 6104 B 4 6114 C 6 6212 B 10 6240 C 8 7201 C 9 9202 C 8
1120 C 2 2125 A 4 2133 C 7 2213 A 11 2233 C 11 2251 B 9 3120 B 2 3126 B 6 3201 B 11 5125 B 6 5220 A 10 5250 B 10 6105 B 4 6132 D 6 6220 A 10 6275 B 10 7221 A 10 9261 A 11

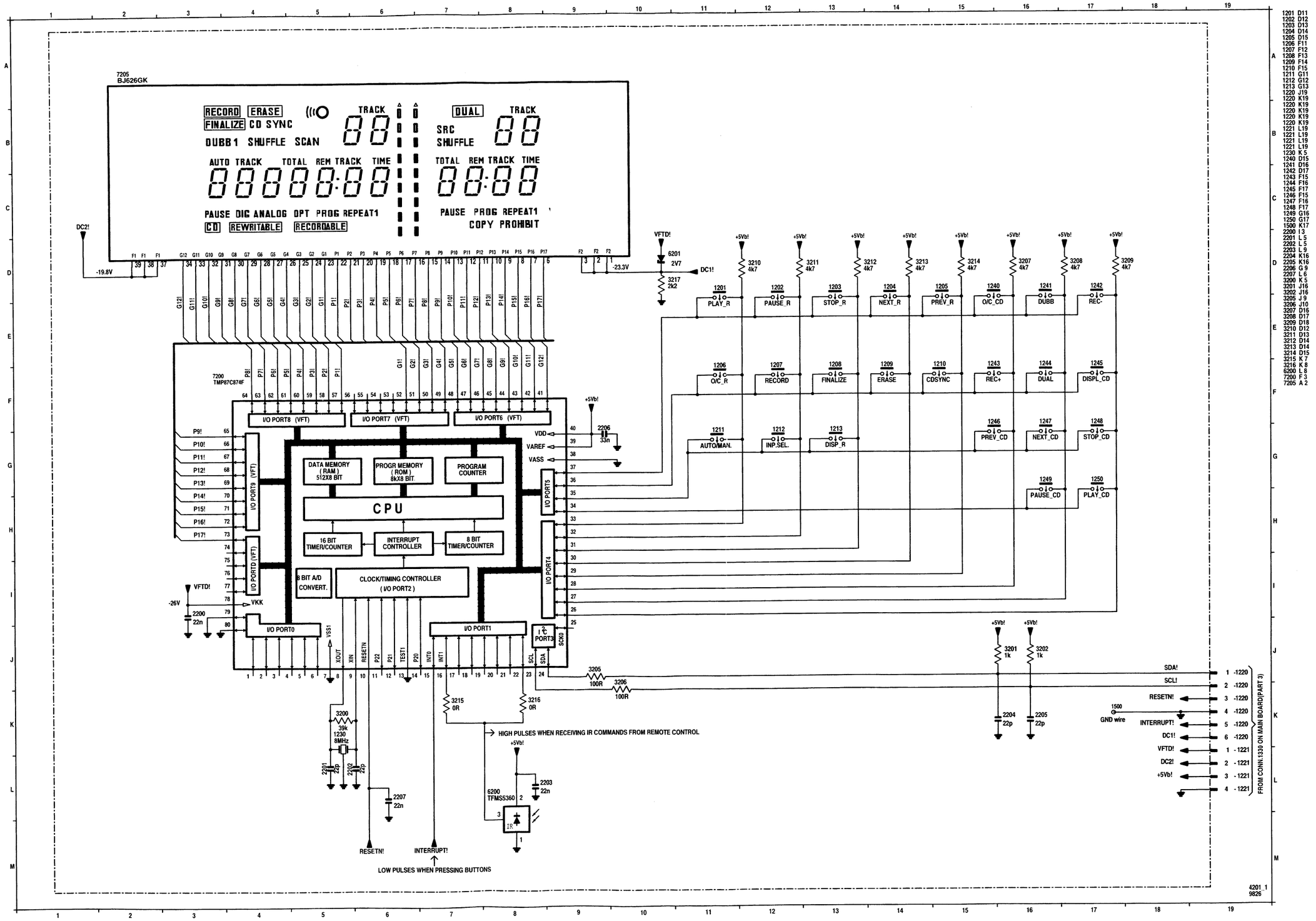


2101 B 5 2104 C 5 2109 C 6 2114 C 7 3102 C 5 3105 C 5 3108 C 6 3111 C 7 3116 C 5 3206 C 9 4110 D 6 TP2 D 2 TP5 B 11 TP8 C 11 TP11 C 10 TP14 A 11 TP17 B 11 TP20 D 11 TP23 D 8 TP26 B 5 TP29 C 5
2102 C 5 2106 D 5 2111 D 5 2201 D 8 3103 C 5 3106 D 5 3109 C 6 3112 C 5 3204 C 9 3221 A 9 6129 C 4 TP3 D 3 TP6 A 11 TP9 C 11 TP12 B 11 TP15 B 11 TP18 B 11 TP21 C 7 TP24 D 8 TP27 C 4 TP30 B 7
2103 C 5 2107 C 6 2113 C 6 2202 C 9 3104 C 5 3107 C 6 3110 D 5 3113 C 6 3205 C 9 3222 A 10 TP1 D 2 TP4 C 2 TP7 C 11 TP10 C 11 TP13 A 10 TP16 C 11 TP19 D 11 TP22 B 7 TP25 A 5 TP28 C 5



10-1

DISPLAY CIRCUIT DIAGRAM

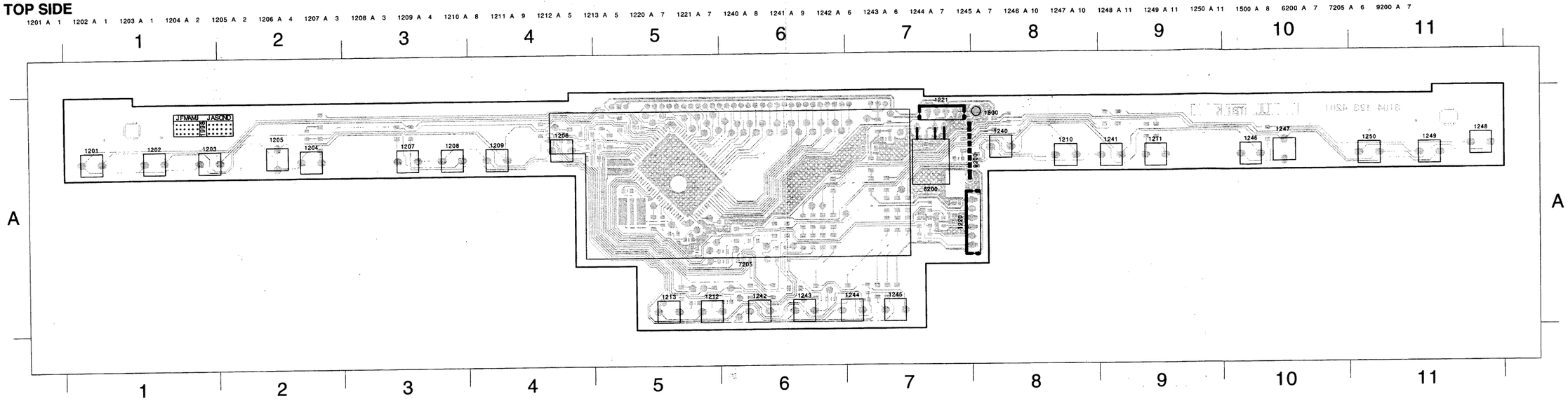


10-2

DISPLAY BOARD

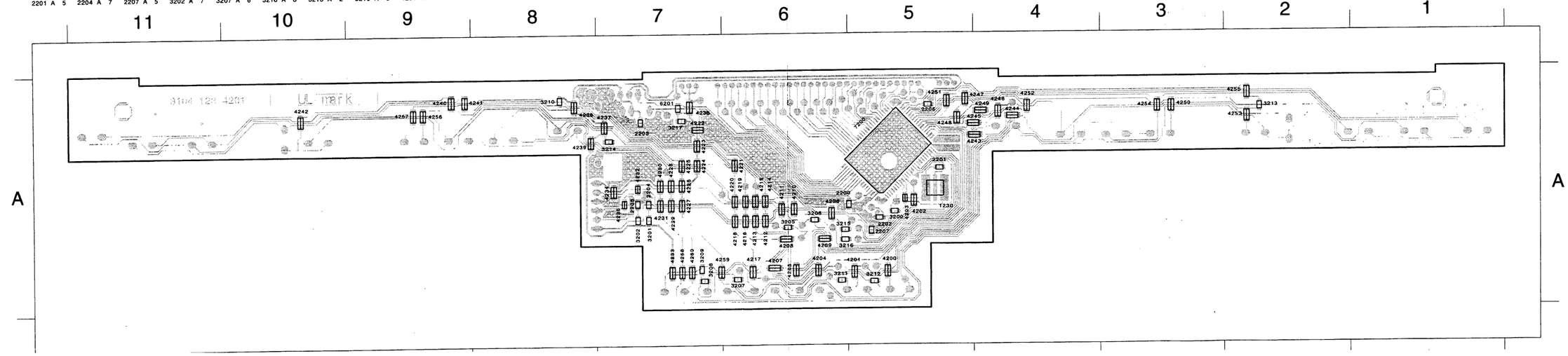
TOP SIDE

1201 A 1 1202 A 1 1203 A 1 1204 A 2 1205 A 2 1206 A 4 1207 A 3 1208 A 3 1209 A 4 1210 A 8 1211 A 9 1212 A 5 1213 A 5 1220 A 7 1221 A 7 1240 A 8 1241 A 9 1242 A 6 1243 A 6 1244 A 7 1245 A 7 1246 A 10 1247 A 10 1248 A 11 1249 A 11 1250 A 11 1500 A 8 6200 A 7 7205 A 6 9200 A 7



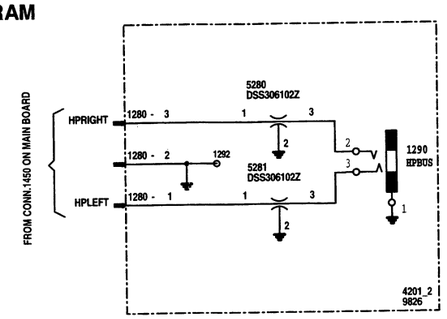
BOTTOM SIDE

1230 A 5 2202 A 5 2205 A 7 3200 A 5 3205 A 6 3208 A 7 3211 A 6 3214 A 7 3217 A 7 4202 A 5 4205 A 6 4208 A 6 4211 A 6 4214 A 6 4217 A 6 4220 A 6 4223 A 7 4226 A 7 4229 A 7 4232 A 7 4235 A 7 4238 A 8 4241 A 9 4244 A 4 4247 A 5 4250 A 3 4253 A 2 4256 A 9 4259 A 7 7200 A 5
2200 A 5 2203 A 7 2206 A 5 3201 A 7 3206 A 6 3209 A 7 3212 A 5 3215 A 6 4200 A 5 4203 A 5 4206 A 6 4209 A 6 4212 A 6 4215 A 6 4218 A 6 4221 A 6 4224 A 7 4227 A 7 4230 A 7 4233 A 7 4236 A 7 4239 A 8 4242 A 10 4245 A 4 4248 A 5 4251 A 5 4254 A 3 4257 A 9 4260 A 7
2201 A 5 2204 A 7 2207 A 5 3202 A 7 3207 A 6 3210 A 8 3213 A 2 3216 A 6 4201 A 5 4204 A 6 4207 A 6 4210 A 6 4213 A 6 4216 A 6 4219 A 6 4222 A 7 4225 A 7 4228 A 7 4231 A 7 4234 A 7 4237 A 7 4240 A 9 4243 A 4 4246 A 4 4249 A 4 4252 A 4 4255 A 2 4258 A 7 6201 A 7



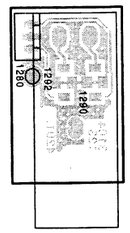
HEADPHONE

CIRCUIT DIAGRAM

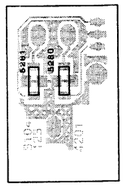


HEADPHONE BOARD

TOP SIDE

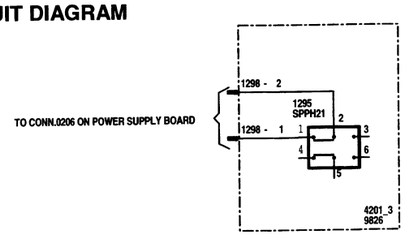


BOTTOM SIDE

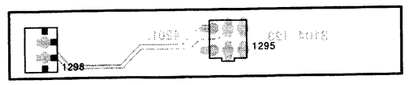


SWITCH ON/OFF

CIRCUIT DIAGRAM



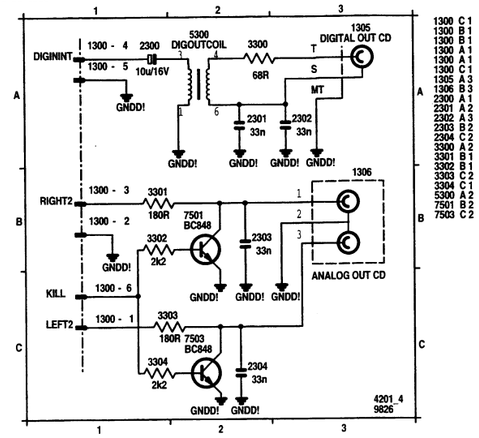
SWITCH BOARD



11-1

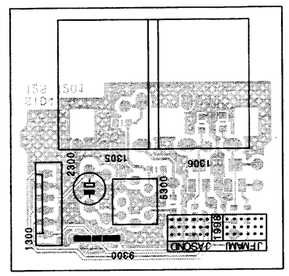
CD OUT BOARD

CIRCUIT DIAGRAM

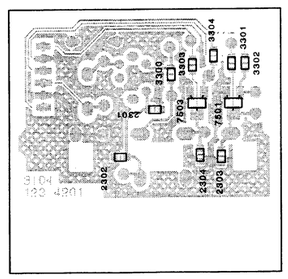


CD OUT BOARD

TOP SIDE



BOTTOM SIDE



CDR MAIN BOARD

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1. SERVO PART CIRCUIT DIAGRAM 12-3
2. ENCODING AND DECODING PART CIRCUIT DIAGRAM 12-4
3. USER PROCESSOR PART CIRCUIT DIAGRAM 12-5
4. DIGITAL IN/OUT PART CIRCUIT DIAGRAM 12-6
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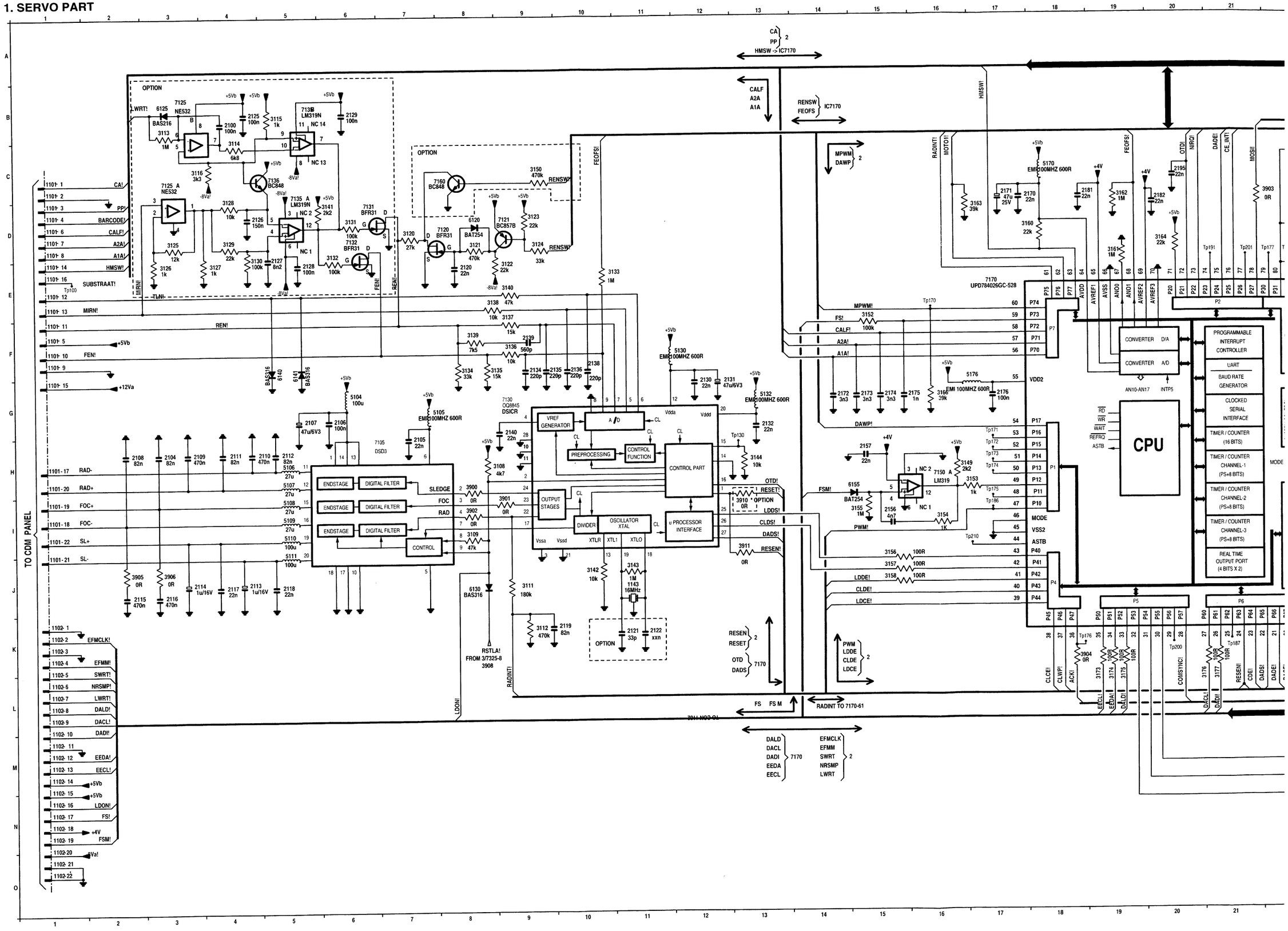
8. CDR MAINBOARD BOTTOM SIDE PCB DRAWING 12-10

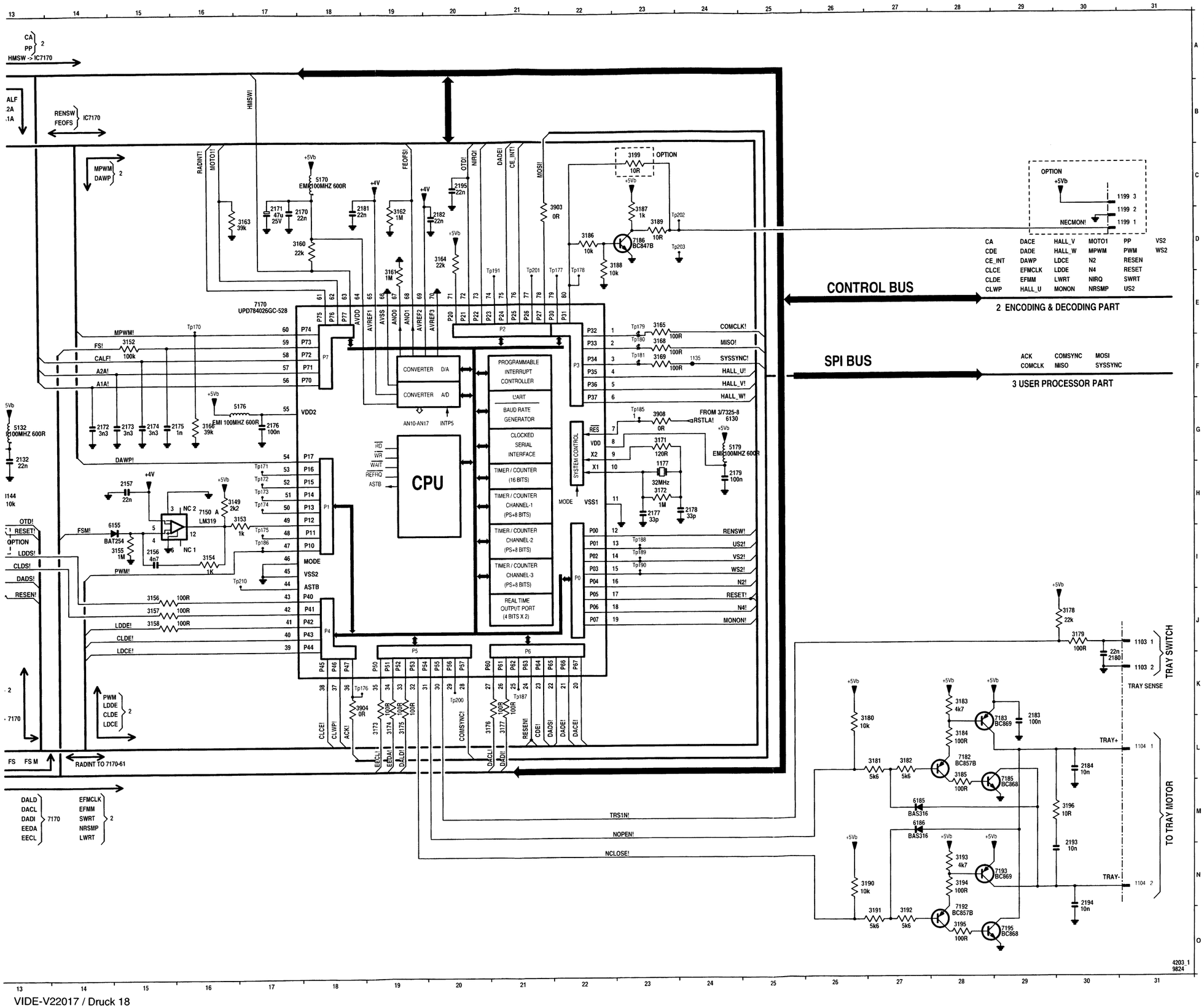
TECHNICIAN NOTES

12-3

1. SERVO PART

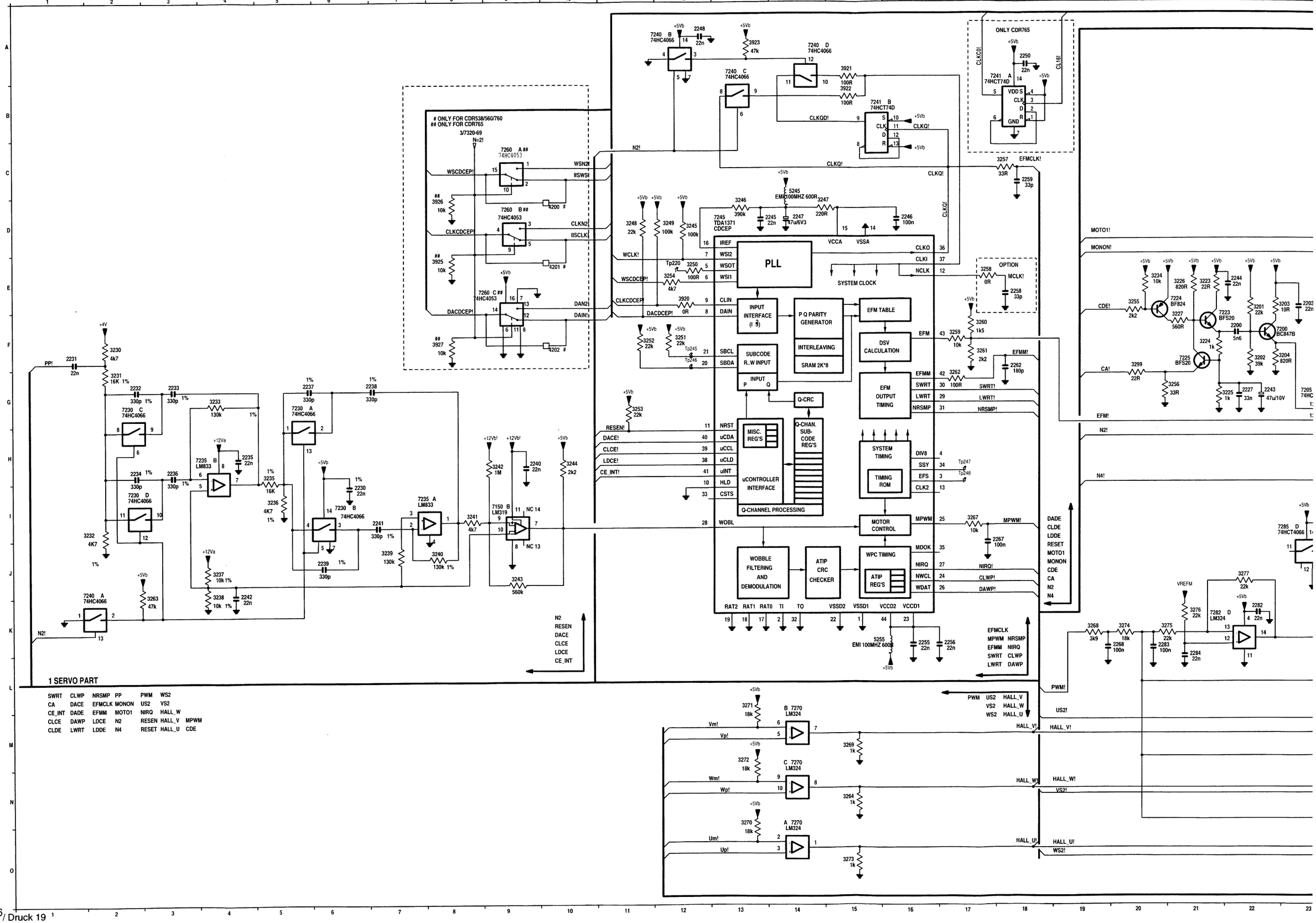


12-3


CONTROL BUS
2 ENCODING & DECODING PART
SPI BUS
3 USER PROCESSOR PART
CPU
7170 UPD784026GC-528
PROGRAMMABLE INTERRUPT CONTROLLER
UART
BAUD RATE GENERATOR
CLOCKED SERIAL INTERFACE
TIMER / COUNTER (16 BITS)
TIMER / COUNTER CHANNEL-1 (PS+8 BITS)
TIMER / COUNTER CHANNEL-2 (PS+8 BITS)
TIMER / COUNTER CHANNEL-3 (PS+8 BITS)
REAL TIME OUTPUT PORT (4 BITS X 2)
CONVERTER D/A
CONVERTER A/D
OPTION
NECMON!
TRAY SWITCH
TRAY SENSE
TO TRAY MOTOR
TRAY+
TRAY-
TRS1N!
NOPEN!
NCLOSE!
RADINT TO 7170-61
FS FS M

12-4

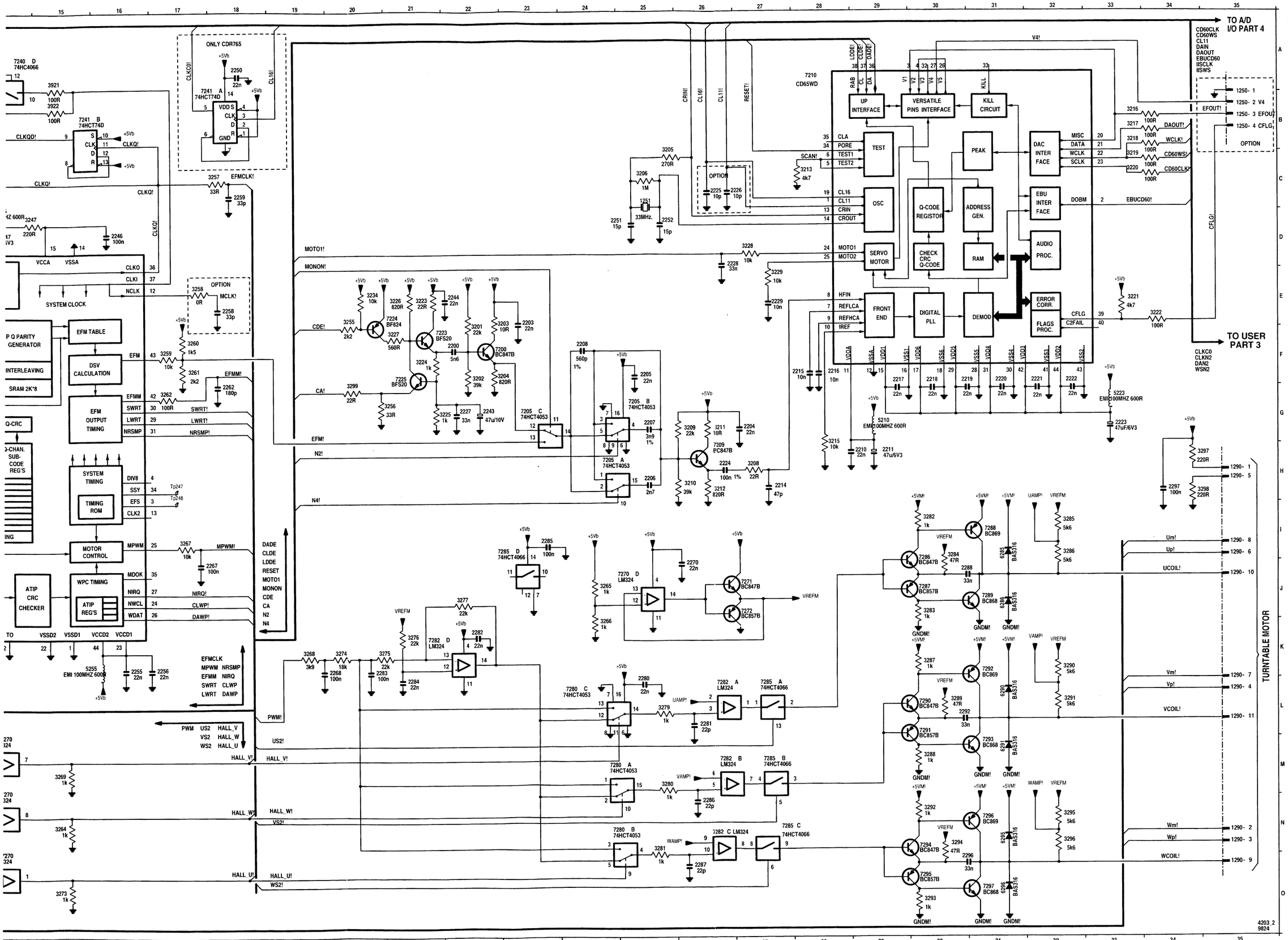
2. ENCODING & DECODING PART



1 SERVO PART

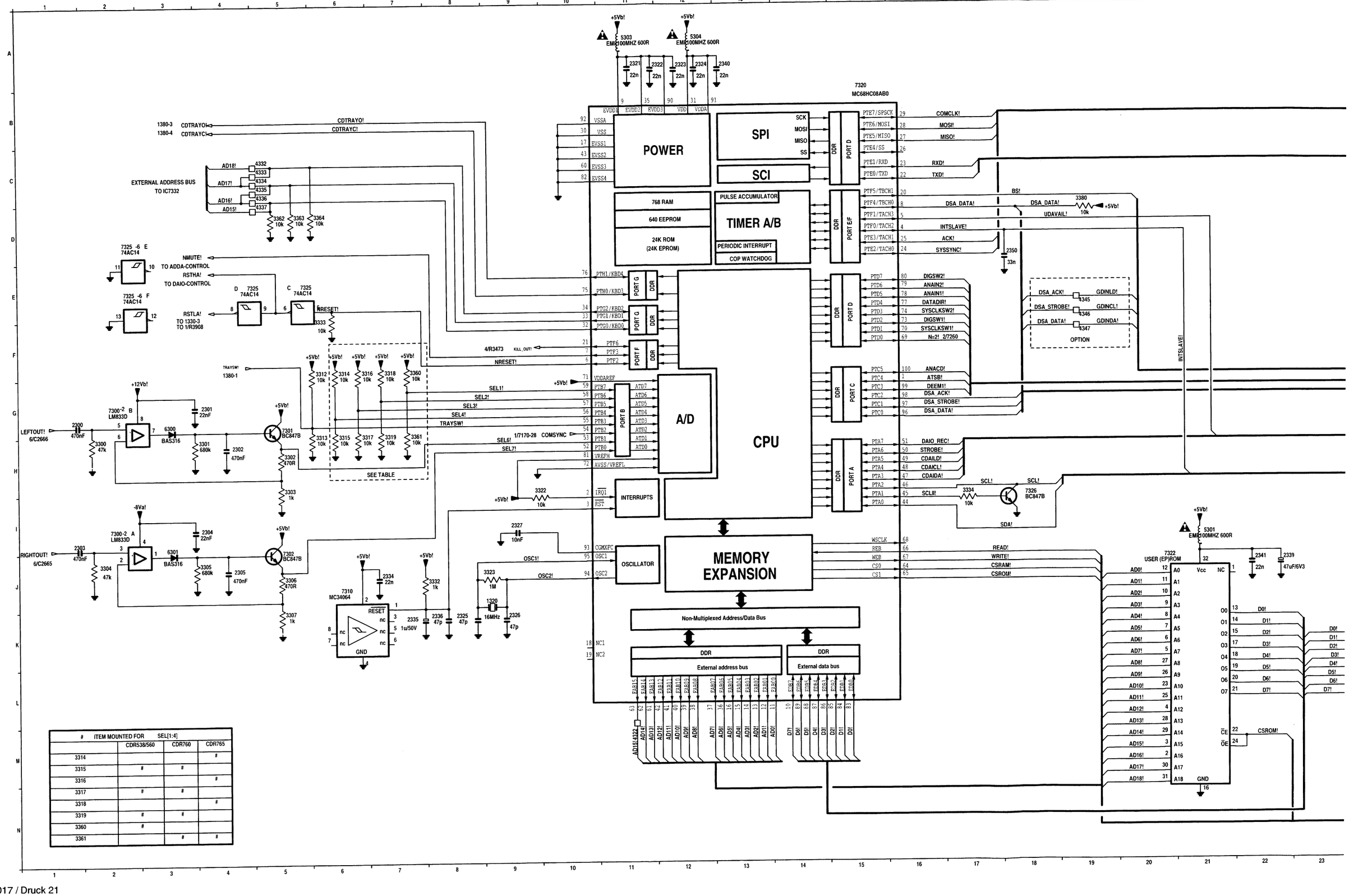
SWRT	CLWP	NRSMP	PP	PWM	WS2	
CA	DACE	EFMCLK	MONON	US2	VS2	
CE_INT	DADE	EFMM	MOTO1	NIRQ	HALL_W	
CLCE	DAWP	LDCE	N2	RESEN	HALL_V	MPWM
CLDE	LWRT	LDDE	N4	RESET	HALL_U	CDE

12-4


TO A/D I/O PART 4
CD60CLK
CD60WS
CL11
DAIN
DAOUT
EBUCD60
IISCLK
IISWS
TO USER PART 3
CLKO
CLKN2
DAN2
WSN2
TURNTABLE MOTOR
7210 CD65WD
UP INTERFACE
VERSATILE PINS INTERFACE
KILL CIRCUIT
TEST
OSC
SERVO MOTOR
FRONT END
DIGITAL PLL
DEMOD
PEAK
Q-CODE REGISTOR
CHECK CRC Q-CODE
ADDRESS GEN.
RAM
DAC INTER FACE
EBU INTER FACE
AUDIO PROC.
ERROR CORR.
FLAGS PROC.
EFM TABLE
DSV CALCULATION
EFM OUTPUT TIMING
SYSTEM TIMING
TIMING ROM
MOTOR CONTROL
WPC TIMING
ATIP REG'S
ATIP CRC CHECKER
P Q PARITY GENERATOR
INTERLEAVING
SRAM 2K*8
Q-CRC
SYSTEM CLOCK
ONLY CDR765
OPTION
EFMCLK
MPWM NRSMP
EFMM NIRQ
SWRT CLWP
LWRT DAWP
PWM US2 HALL_V
VS2 HALL_W
WS2 HALL_U
DADE
CLDE
LDDE
RESET
MOTO1
MONON
CDE
CA
N2
N4
EFM
EFMM
SWRT
LWRT
NRSMP
MPWM
MDOK
NIRQ
NWCL
WDAT
DIV8
SSY
EFS
CLK2
NCLK
CLKO
CLKI
EFOUT!
CFLG!
DAOUT!
WCLK!
CD60WS!
CD60CLK!
EBUCD60!
Um!
Up!
UCOIL!
Vm!
Vp!
VCOIL!
Wm!
Wp!
WCOIL!
1290- 1
1290- 2 V4
1290- 3 EFOU
1290- 4 CFLG
1290- 8
1290- 6
1290- 10
1290- 7
1290- 4
1290- 11
1290- 2
1290- 3
1290- 9
4203 2
9824

12-5

3. USER PROCESSOR PART



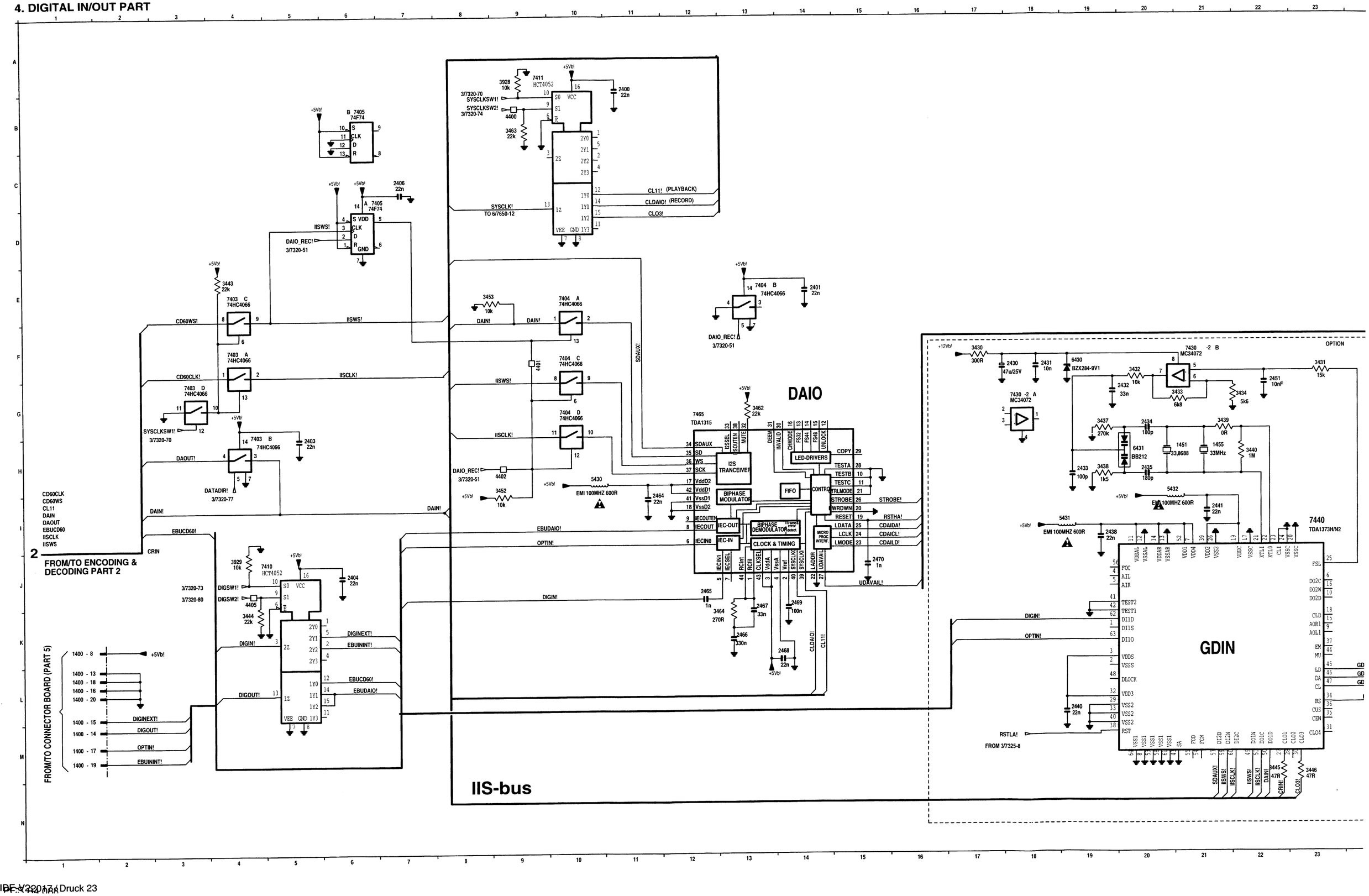
#	ITEM MOUNTED FOR SEL[1:4]		
	CDR538/560	CDR760	CDR765
3314			#
3315	#	#	
3316			#
3317	#	#	
3318			#
3319	#	#	
3360	#		
3361		#	#

12-5

+5Vb!
5303 EMI100MHZ 600R
5304 EMI100MHZ 600R
2321 22n
2322 22n
2323 22n
2324 22n
2340 22n
7320 MC68HC08AB0
POWER
SPI
SCI
768 RAM
640 EEPROM
24K ROM (24K EPROM)
PULSE ACCUMULATOR
TIMER A/B
PERIODIC INTERRUPT
COP WATCHDOG
CPU
A/D
INTERRUPTS
OSCILLATOR
MEMORY EXPANSION
Non-Multiplexed Address/Data Bus
DDR
External address bus
External data bus
SCK
MOSI
MISO
SS
PORT A
PORT B
PORT C
PORT D
PORT E/F
PORT F
PORT G
COMCLK!
MOSI!
MISO!
RXD!
TXD!
BS!
DSA_DATA!
UDAVAIL!
INTSLAVE!
ACK!
SYSSYNC!
DIGSW2!
ANAIN2!
ANAIN1!
DATADIR!
SYSCLKSW2!
DIGSW1!
SYSCLKSW1!
N=2! 2/7260
ANACD!
ATSB!
DEEM1!
DSA_ACK!
DSA_STROBE!
DSA_DATA!
DAIO_REC!
STROBE!
CDAILD!
CDAICL!
CDAIDA!
SCL!!
SDA!
READ!
WRITE!
CSRAM!
CSROM!
DSA_ACK! GDINLD! 4345
DSA_STROBE! GDINCL! 4346
DSA_DATA! GDINDA! 4347
OPTION
SPI BUS
7325 -B MC74HC14AD
7325 -A MC74HC14AD
3327 10k
3325 100k
3328 6k8
-8Va!
3350 4k7
3330 100R
2329 22n
2330 100n
Tp300
Tp301
Tp302
SERIAL INTERFACE
7320-55 TRAYSW!
7320-76 CDTRAYO!
7320-75 CDTRAYC!
1380 - 1
1380 - 2
1380 - 3
1380 - 4
GDIN-control 4
ADDA-control 4-6
DSA-control CD PART
DAIO-control 4
I2C BUS
5310 NFM39R10C102
5311 NFM39R10C102
5312 NFM39R10C102
5313 NFM39R10C102
5314 NFM39R10C102
5315 NFM39R10C102
VDC1!
VDC2!
VFTD!
RSTLA!
INTSLAVE!
TO DISPLAY
TO CONN.1200 ON CD MAIN BOARD
5301 EMI100MHZ 600R
5302 EMI100MHZ 600R
7322 USER (EP)ROM
7323 CY6264-70SNC
2341 22n
2339 47uF/6V3
3322 10k
3334 10k
7326 BC847B
4203_3
9824

12-6

4. DIGITAL IN/OUT PART



12-6

DAI-O-control 3

GDIN_control 3

DAIO

GDIN

7440
TDA1373H/N2

7465
TDA1315

I2S TRANCEIVER

BIPHASE MODULATOR

BIPHASE DEMODULATOR

CLOCK & TIMING

FIFO

CONTROL

LED-DRIVERS

MICRO PROC INTERF.

7404 A 74HC4066

7404 B 74HC4066

7404 C 74HC4066

7404 D 74HC4066

7430 -2 A MC34072

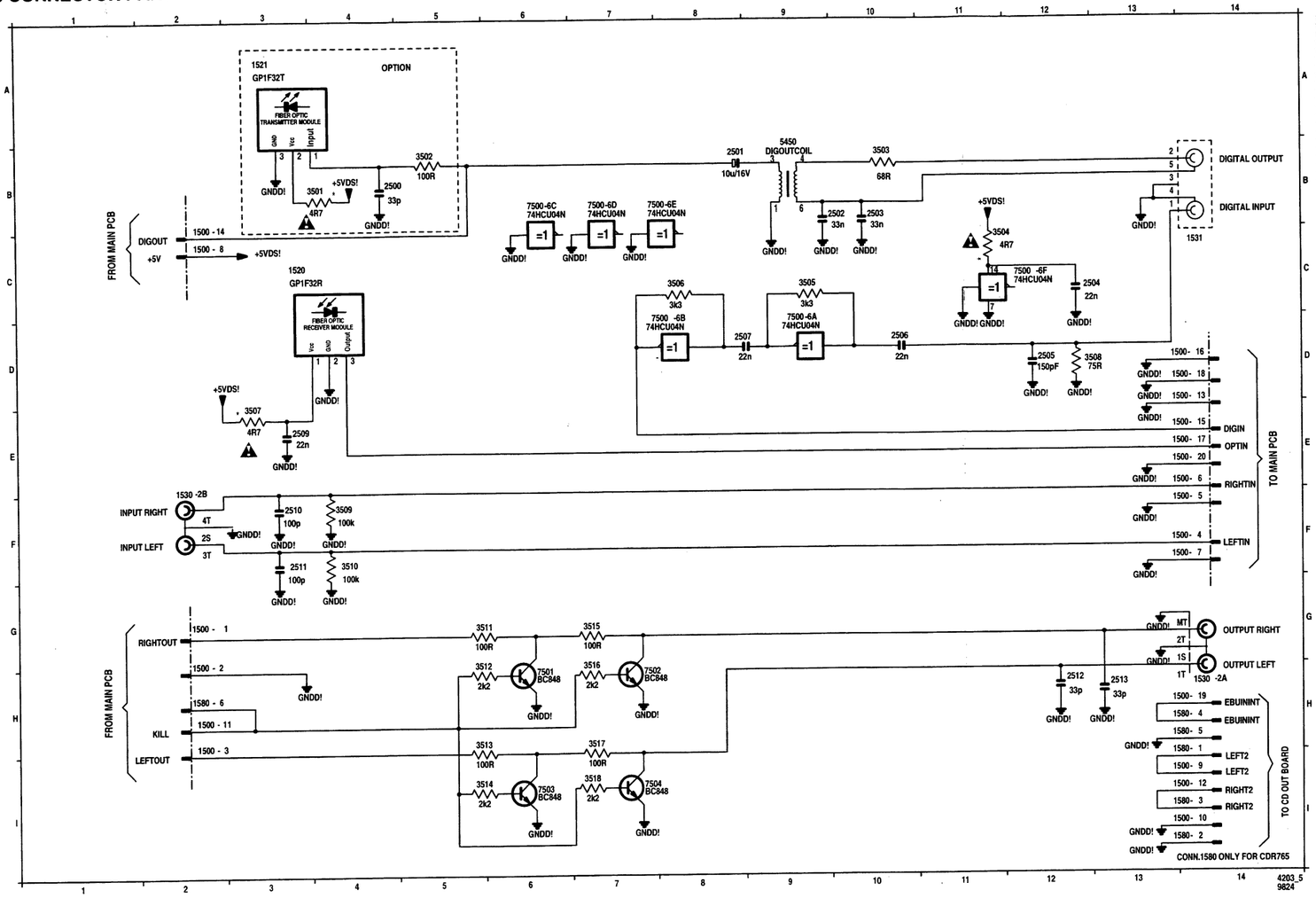
7430 -2 B MC34072

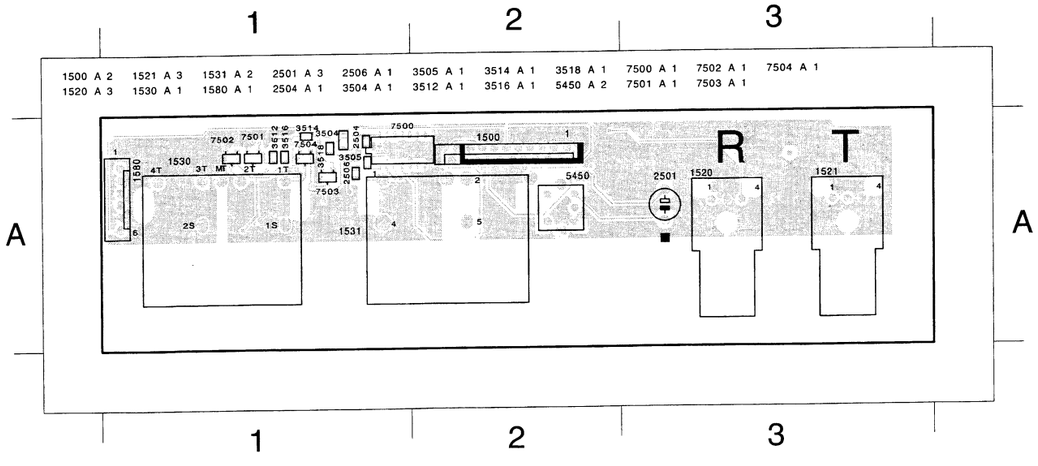
OPTION

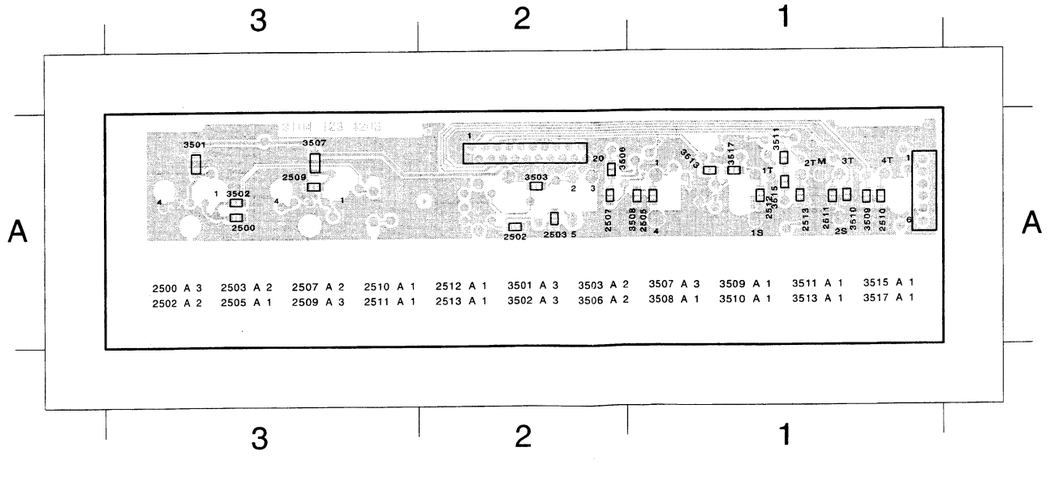
FROM CONN. 0205 ON POWER SUPPLY

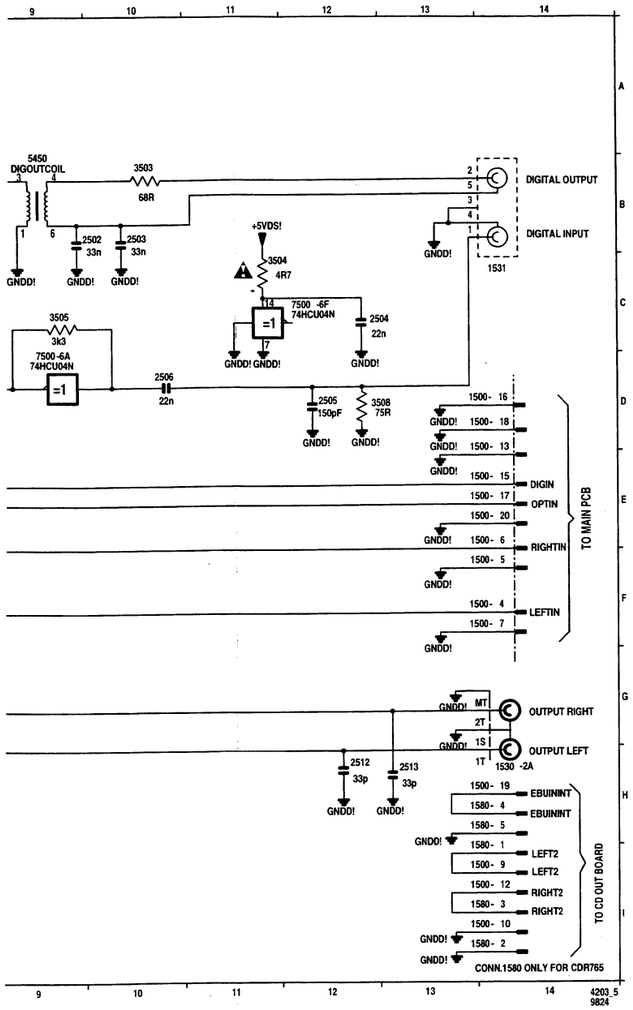
12-7

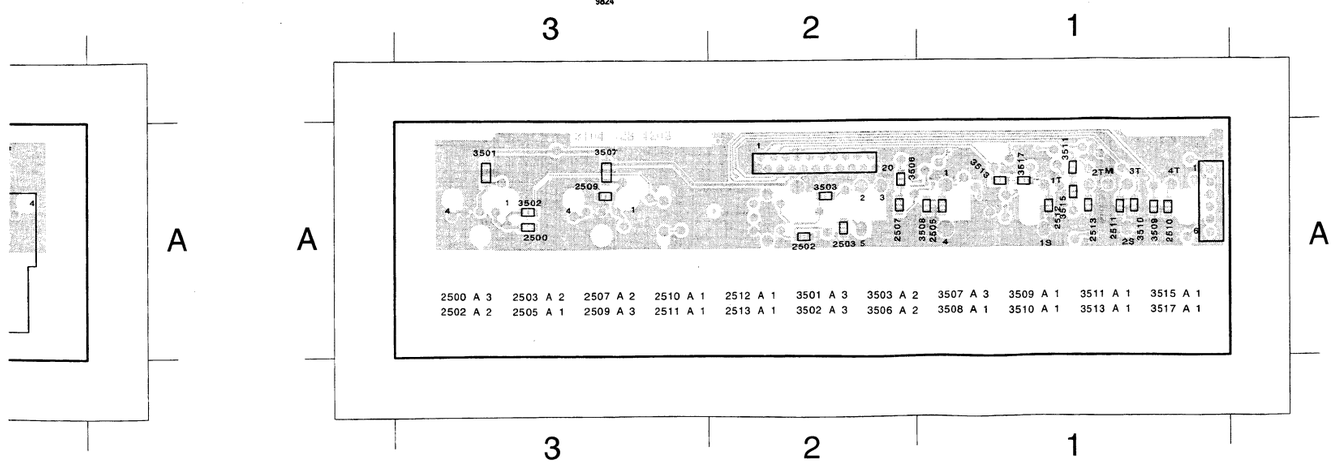
5 CONNECTOR PART





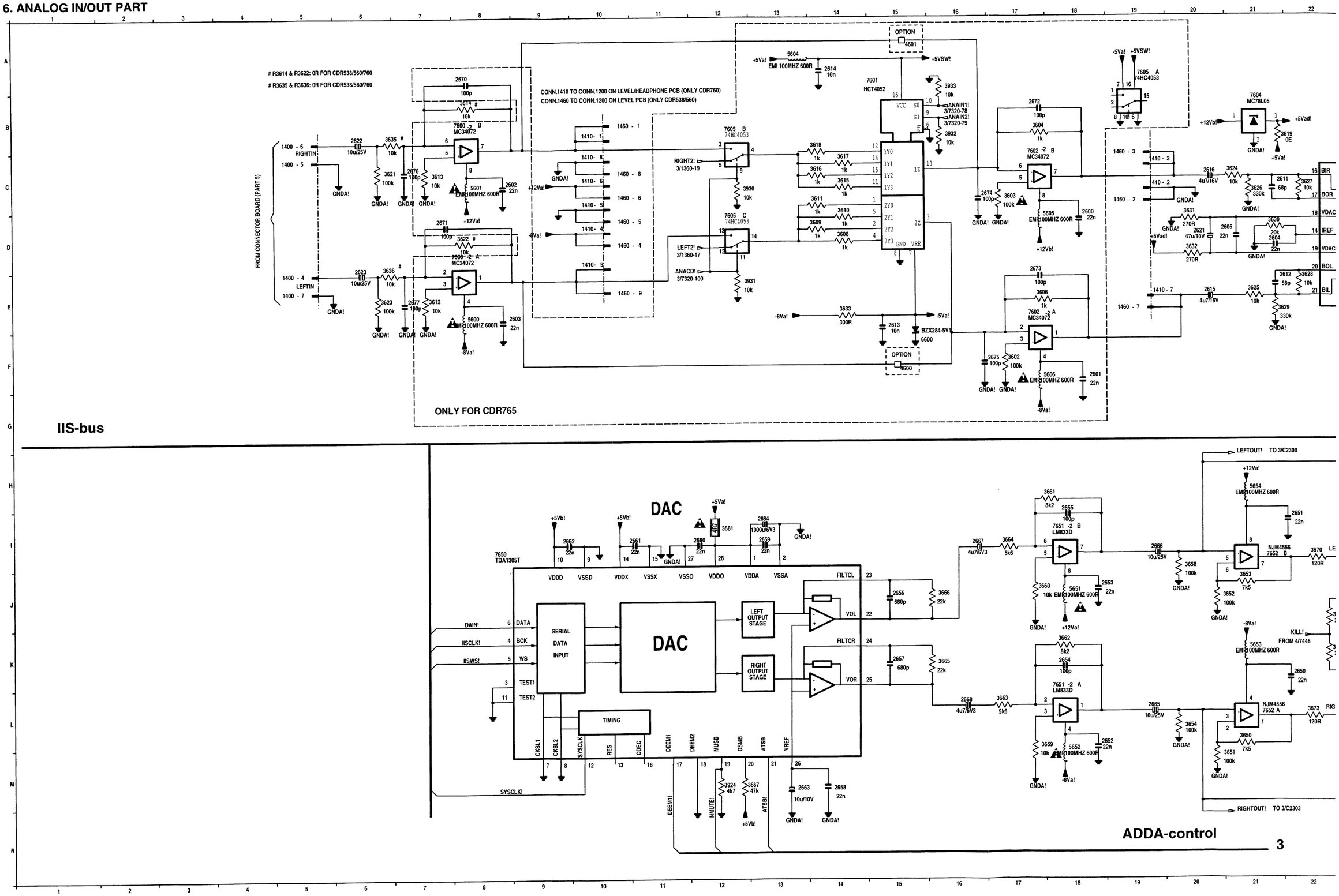



9
10
11
12
13
14
5450
DIGOUTCOIL
3503
68R
2502
33n
2503
33n
GNDD!
+5VDS!
3504
4R7
7500 -6F
74HCU04N
=1
2504
22n
3505
3k3
7500 -6A
74HCU04N
2506
22n
2505
150pF
3508
75R
DIGITAL OUTPUT
DIGITAL INPUT
1531
1500- 16
1500- 18
1500- 13
1500- 15
DIGIN
1500- 17
OPTIN
1500- 20
1500- 6
RIGHTIN
1500- 5
1500- 4
LEFTIN
1500- 7
TO MAIN PCB
MT
OUTPUT RIGHT
2T
1S
OUTPUT LEFT
1T
1530 -2A
2512
33p
2513
33p
1500- 19
EBUININT
1580- 4
EBUININT
1580- 5
1580- 1
LEFT2
1500- 9
LEFT2
1500- 12
RIGHT2
1580- 3
RIGHT2
1500- 10
1580- 2
TO CD OUT BOARD
CONN.1580 ONLY FOR CDR765
4203.5
9824

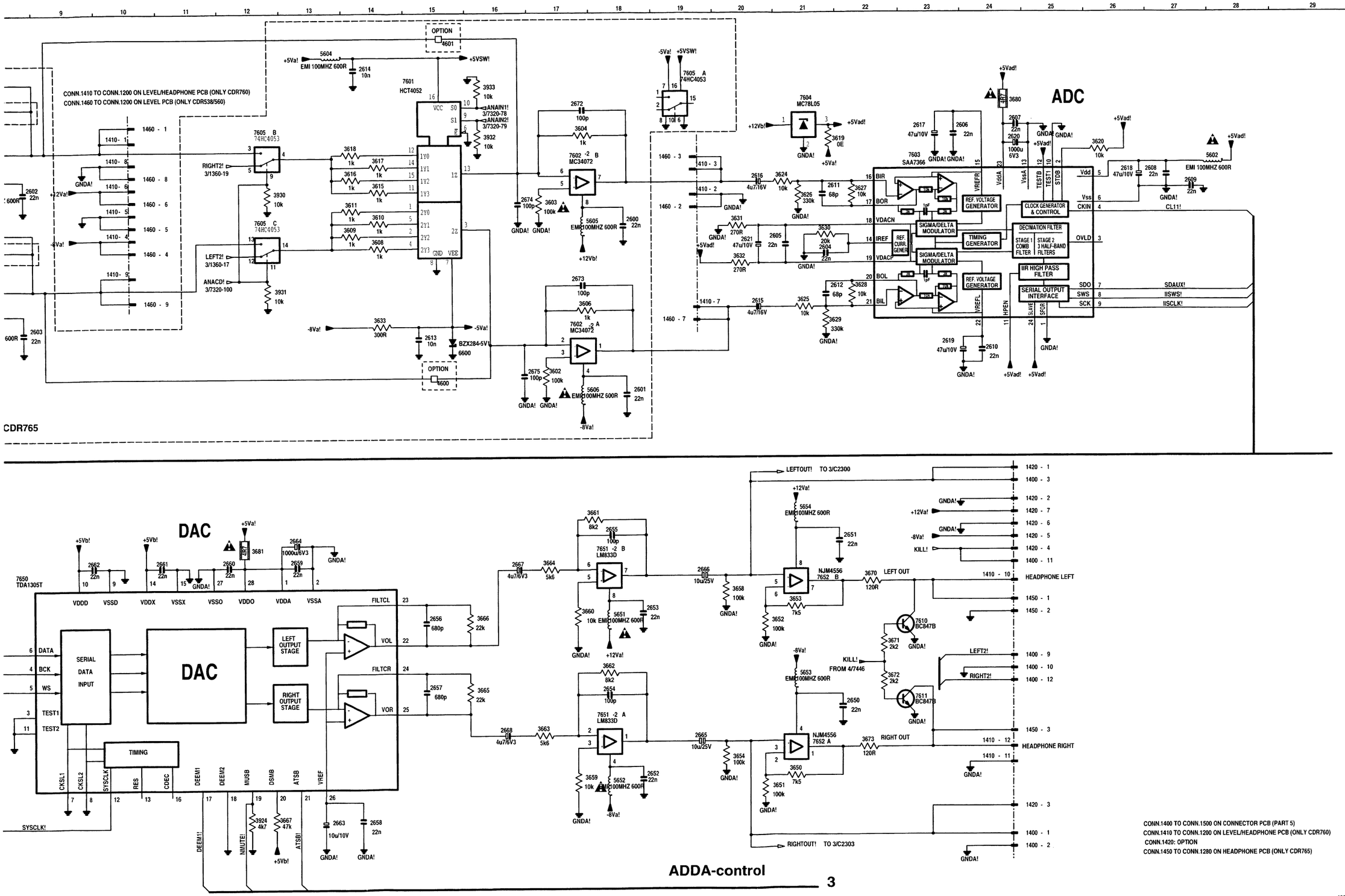

3
2
1
A
3501
3507
2509
3502
2500
3503
2502
2503
2507
3508
2505
3504
3506
3517
3511
2515
2513
2511
3510
3509
2510
2500 A 3
2502 A 2
2503 A 2
2505 A 1
2507 A 2
2509 A 3
2510 A 1
2511 A 1
2512 A 1
2513 A 1
3501 A 3
3502 A 3
3503 A 2
3506 A 2
3507 A 3
3508 A 1
3509 A 1
3510 A 1
3511 A 1
3513 A 1
3515 A 1
3517 A 1

12-8

6. ANALOG IN/OUT PART



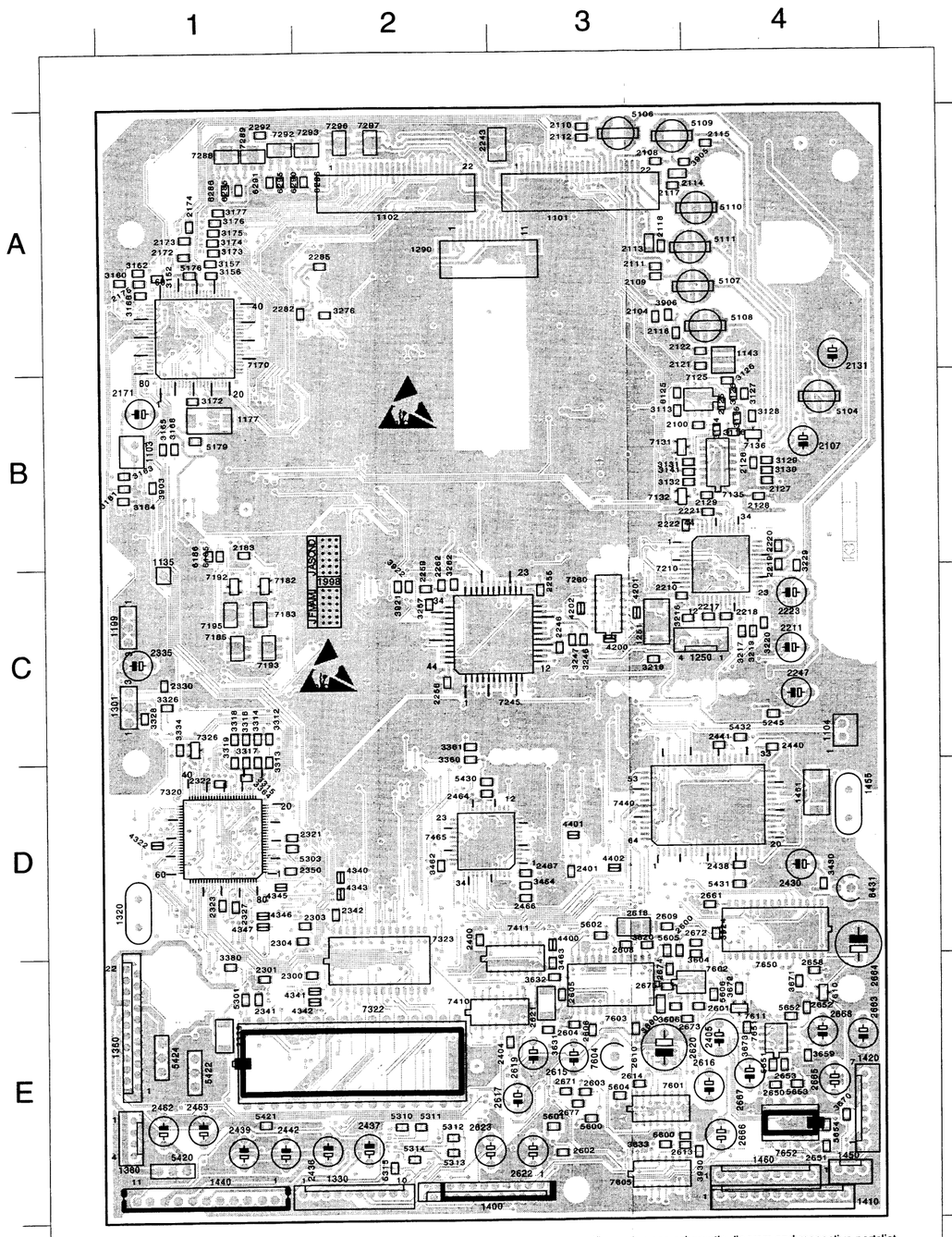
12-8



CONN.1400 TO CONN.1500 ON CONNECTOR PCB (PART 5)
CONN.1410 TO CONN.1200 ON LEVEL/HEADPHONE PCB (ONLY CDR760)
CONN.1420: OPTION
CONN.1450 TO CONN.1280 ON HEADPHONE PCB (ONLY CDR765)

12-9

CDR MAINBOARD TOP SIDE

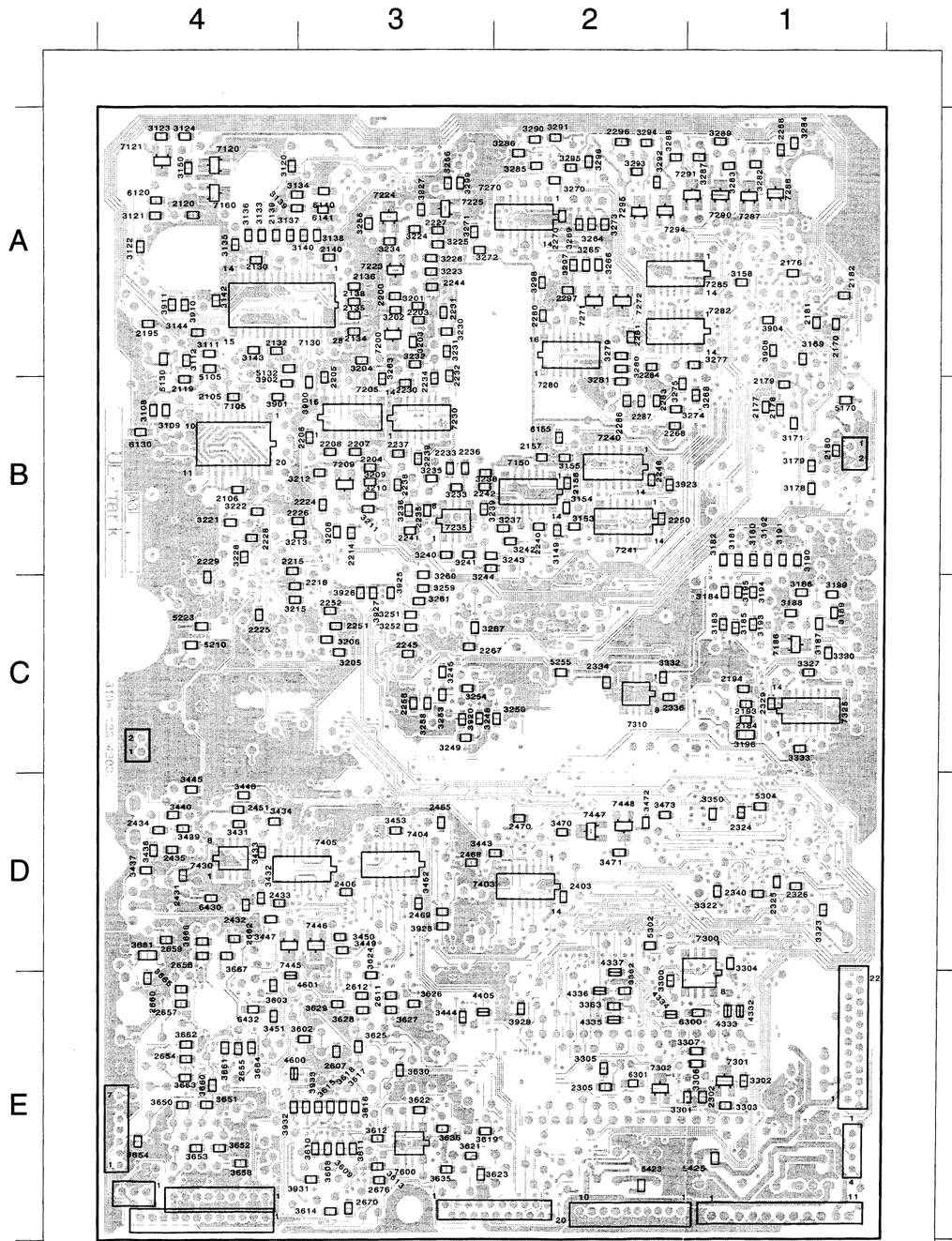


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective partslist.

1101 A 3	2438 D 4	3314 C 1	6295 A 2
1102 A 2	2439 E 1	3315 C 1	6296 A 2
1103 B 1	2440 C 4	3316 C 1	6431 D 4
1104 C 4	2441 C 4	3317 C 1	6600 E 3
1135 C 1	2442 E 1	3318 C 1	7125 B 4
1143 A 4	2462 E 1	3319 C 1	7131 B 3
1177 B 1	2463 E 1	3326 C 1	7132 B 3
1199 C 1	2464 D 2	3328 C 1	7135 B 4
1250 C 4	2466 D 3	3334 C 1	7136 B 4
1251 C 3	2467 D 3	3360 C 2	7170 A 1
1290 A 2	2600 D 3	3361 C 2	7182 C 1
1301 C 1	2601 E 4	3364 D 1	7183 C 1
1320 D 1	2602 E 3	3380 E 1	7185 C 1
1330 E 2	2603 E 3	3430 D 4	7192 C 1
1360 E 1	2604 E 3	3462 D 2	7193 C 1
1380 E 1	2605 E 3	3463 E 3	7195 C 1
1400 E 2	2606 E 3	3464 D 3	7210 C 4
1410 E 4	2608 D 3	3604 E 4	7245 C 3
1420 E 4	2609 D 3	3606 E 3	7260 C 3
1440 E 1	2610 E 3	3620 D 3	7288 A 1
1450 E 4	2613 E 3	3631 E 3	7289 A 1
1451 D 4	2614 E 3	3632 E 3	7292 A 1
1455 D 4	2615 E 3	3633 E 3	7293 A 2
1460 E 4	2616 E 4	3659 E 4	7296 A 2
2100 B 4	2617 E 3	3670 E 4	7297 A 2
2104 A 3	2618 D 3	3671 E 4	7320 D 1
2107 B 4	2619 E 3	3672 E 4	7322 E 2
2108 A 3	2620 E 3	3673 E 4	7323 E 2
2109 A 3	2621 E 3	3680 E 3	7326 C 1
2110 A 3	2622 E 3	3903 B 1	7410 E 3
2111 A 3	2623 E 2	3905 A 4	7411 E 3
2112 A 3	2650 E 4	3906 A 3	7440 D 4
2113 A 3	2651 E 4	3921 C 2	7465 D 2
2114 A 3	2652 E 4	3922 C 2	7601 E 3
2115 A 4	2653 E 4	3924 D 4	7602 E 4
2116 A 3	2658 E 4	3930 E 4	7603 E 3
2117 A 3	2661 D 4	4200 C 3	7604 E 3
2118 A 3	2663 E 4	4201 C 3	7605 E 3
2121 A 4	2664 D 4	4202 C 3	7610 E 4
2122 A 4	2665 E 4	4322 D 1	7611 E 4
2125 B 4	2666 E 4	4340 D 2	7650 D 4
2126 B 4	2667 E 4	4341 E 2	7651 E 4
2127 B 4	2668 E 4	4342 E 2	7652 E 4
2128 B 4	2671 E 3	4343 D 2	
2129 B 4	2672 D 4	4345 D 1	
2131 A 4	2673 E 3	4346 D 1	
2171 B 1	2674 E 3	4347 D 1	
2172 A 1	2675 E 3	4400 D 3	
2173 A 1	2677 E 3	4401 D 3	
2174 A 1	3113 B 3	4402 D 3	
2175 A 1	3114 B 4	5104 B 4	
2183 B 1	3115 B 4	5106 A 3	
2210 C 3	3116 B 4	5107 A 4	
2211 C 4	3125 B 4	5108 A 4	
2217 C 4	3126 B 4	5109 A 3	
2218 C 4	3127 B 4	5110 A 4	
2219 C 4	3128 B 4	5111 A 4	
2220 B 4	3129 B 4	5176 A 1	
2221 B 4	3130 B 4	5179 B 1	
2222 B 4	3131 B 4	5245 C 4	
2223 C 4	3132 B 4	5301 E 1	
2243 A 3	3141 B 4	5303 D 1	
2246 C 3	3152 A 1	5310 E 2	
2247 C 4	3156 A 1	5311 E 2	
2255 C 3	3157 A 1	5312 E 2	
2256 C 2	3160 A 1	5313 E 2	
2259 C 2	3161 B 1	5314 E 2	
2262 C 2	3162 A 1	5315 E 2	
2282 A 2	3163 B 1	5420 E 1	
2285 A 2	3164 B 1	5421 E 1	
2292 A 1	3165 B 1	5422 E 1	
2300 E 2	3166 A 1	5424 E 1	
2301 E 1	3168 B 1	5430 D 2	
2303 D 2	3172 B 1	5431 D 4	
2304 D 2	3173 A 1	5432 C 4	
2321 D 1	3174 A 1	5600 E 3	
2322 D 1	3175 A 1	5601 E 3	
2323 D 1	3176 A 1	5602 D 3	
2327 D 1	3177 A 1	5604 E 3	
2330 C 1	3216 C 4	5605 D 3	
2335 C 1	3217 C 4	5606 E 4	
2339 E 1	3218 C 3	5651 E 4	
2341 E 1	3219 C 4	5652 E 4	
2342 D 2	3220 C 4	5653 E 4	
2350 D 1	3229 C 4	5654 E 4	
2400 D 2	3246 C 3	6125 B 3	
2401 D 3	3247 C 3	6185 B 1	
2404 E 3	3257 C 2	6186 B 1	
2405 E 4	3262 C 2	6285 A 1	
2430 D 4	3276 A 2	6286 A 1	
2436 E 2	3312 C 1	6290 A 1	
2437 E 2	3313 C 1	6291 A 1	

12-10

CDR MAINBOARD BOTTOM SIDE



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective partslist.

2105	B 4	2468	D 3	3238	B 3	3471	D 2	7121	A 4
2106	B 4	2469	D 3	3239	B 3	3472	D 2	7130	A 4
2119	B 4	2470	D 2	3240	B 3	3473	D 2	7150	B 2
2120	A 4	2607	E 3	3241	B 3	3602	E 3	7160	A 4
2130	A 4	2611	E 3	3242	B 2	3603	E 4	7186	C 1
2132	A 4	2612	E 3	3243	B 3	3608	E 3	7200	A 3
2134	A 3	2654	E 4	3244	B 3	3609	E 3	7205	B 3
2135	A 3	2655	E 4	3245	C 3	3610	E 3	7209	B 3
2136	A 3	2656	D 4	3248	C 3	3611	E 3	7223	A 3
2138	A 3	2657	E 4	3249	C 3	3612	E 3	7224	A 3
2139	A 4	2659	D 4	3250	C 2	3613	E 3	7225	A 3
2140	A 3	2660	E 4	3251	C 3	3614	E 3	7230	B 3
2156	B 2	2662	D 4	3252	C 3	3615	E 3	7235	B 3
2157	B 2	2670	E 3	3253	C 3	3616	E 3	7240	B 2
2170	A 1	2676	E 3	3254	C 3	3617	E 3	7241	B 2
2176	A 1	3108	B 4	3255	A 3	3618	E 3	7270	A 2
2177	B 1	3109	B 4	3256	A 3	3619	E 3	7271	A 2
2178	B 1	3111	A 4	3258	C 3	3621	E 3	7272	A 2
2179	B 1	3112	A 4	3259	C 3	3622	E 3	7280	A 2
2180	B 1	3120	A 4	3260	C 3	3623	E 3	7282	A 2
2181	A 1	3121	A 4	3261	C 3	3624	E 3	7285	A 2
2182	A 1	3122	A 4	3263	B 3	3625	E 3	7286	A 1
2184	C 1	3123	A 4	3264	A 2	3626	E 3	7287	A 1
2193	C 1	3124	A 4	3265	A 2	3627	E 3	7290	A 1
2194	C 1	3133	A 4	3266	A 2	3628	E 3	7291	A 1
2195	A 4	3134	A 4	3267	C 3	3629	E 3	7294	A 2
2200	A 3	3135	A 4	3268	B 1	3630	E 3	7295	A 2
2203	A 3	3136	A 4	3269	A 2	3635	E 3	7300	E 1
2204	B 3	3137	A 4	3270	A 2	3636	E 3	7301	E 1
2205	B 3	3138	A 3	3271	A 3	3650	E 4	7302	E 2
2206	B 3	3139	A 4	3272	A 3	3651	E 4	7310	C 2
2207	B 3	3140	A 3	3273	A 2	3652	E 4	7325	C 1
2208	B 3	3142	A 4	3274	B 2	3653	E 4	7403	D 2
2214	B 3	3143	A 4	3275	B 2	3654	E 4	7404	D 3
2215	B 4	3144	A 4	3277	A 1	3658	E 4	7405	D 3
2216	C 4	3149	B 3	3279	A 2	3660	E 4	7430	D 4
2224	B 3	3150	A 4	3280	A 2	3661	E 4	7445	D 4
2225	C 4	3153	B 3	3281	B 2	3662	E 4	7446	D 3
2226	B 4	3154	B 3	3282	A 1	3663	E 4	7447	D 2
2227	A 3	3155	B 3	3283	A 1	3664	E 4	7448	D 2
2228	B 4	3158	A 4	3284	A 1	3665	E 4	7600	E 3
2229	C 4	3169	A 4	3285	A 2	3666	D 4		
2230	B 3	3171	B 4	3286	A 2	3667	D 4		
2231	A 3	3178	B 4	3287	A 1	3681	D 4		
2232	B 3	3179	B 4	3288	A 2	3900	B 3		
2233	B 3	3180	B 4	3289	A 1	3901	B 4		
2234	B 3	3181	B 4	3290	A 2	3902	B 4		
2235	B 3	3182	B 4	3291	A 2	3904	A 1		
2236	B 3	3183	C 4	3292	A 2	3908	A 1		
2237	B 3	3184	C 4	3293	A 2	3910	A 4		
2238	B 3	3185	C 4	3294	A 2	3911	A 4		
2239	B 3	3186	C 4	3295	A 2	3920	C 3		
2240	B 2	3187	C 4	3296	A 2	3923	B 2		
2241	B 3	3188	C 4	3297	A 2	3925	C 3		
2242	B 3	3189	C 4	3298	A 2	3926	C 3		
2244	A 3	3190	B 4	3299	A 3	3927	C 3		
2245	C 3	3191	B 4	3300	E 2	3928	D 3		
2248	B 2	3192	B 4	3301	E 1	3929	E 2		
2250	B 2	3193	C 4	3302	E 1	3931	E 3		
2251	C 3	3194	C 4	3303	E 1	3932	E 4		
2252	C 3	3195	C 4	3304	D 1	3933	E 3		
2258	C 3	3196	C 4	3305	E 2	4332	E 1		
2267	C 3	3199	C 4	3306	E 1	4333	E 1		
2268	B 2	3201	A 3	3307	E 1	4334	E 2		
2270	A 2	3202	A 3	3322	D 1	4335	E 2		
2280	A 2	3203	A 3	3323	D 1	4336	E 2		
2281	A 2	3204	A 3	3327	C 1	4337	E 2		
2283	B 2	3205	C 3	3330	C 1	4405	E 3		
2284	A 2	3206	C 3	3332	C 2	4600	E 4		
2286	B 2	3208	B 3	3333	C 1	4601	E 4		
2287	B 2	3209	B 3	3350	D 1	5105	A 4		
2288	A 1	3210	B 3	3362	E 2	5130	A 4		
2296	A 2	3211	B 3	3363	E 2	5132	A 4		
2297	A 2	3212	B 3	3431	D 4	5170	B 1		
2302	E 1	3213	B 3	3432	D 4	5210	C 4		
2305	E 2	3215	C 4	3433	D 4	5223	C 4		
2324	D 1	3221	B 4	3434	D 4	5255	C 2		
2325	D 1	3222	B 4	3437	D 4	5302	D 2		
2326	D 1	3223	A 3	3438	D 4	5304	D 1		
2329	C 1	3224	A 3	3439	D 4	5423	E 2		
2334	C 2	3225	A 3	3440	D 4	5425	E 1		
2336	C 2	3226	A 3	3443	D 2	6120	A 4		
2340	D 1	3227	A 3	3444	E 3	6130	B 4		
2403	D 2	3228	B 4	3445	D 4	6140	A 3		
2406	D 3	3230	A 3	3446	D 4	6141	A 3		
2431	D 4	3231	A 3	3447	D 4	6155	B 2		
2432	D 4	3232	A 3	3449	D 3	6300	E 1		
2433	D 4	3233	B 3	3450	D 3	6301	E 2		
2434	D 4	3234	A 3	3451	E 4	6430	D 4		
2435	D 4	3235	B 3	3452	D 3	6432	E 4		
2451	D 4	3236	B 3	3453	D 3	7105	B 4		
2465	D 3	3237	B 2	3470	D 2	7120	A 4		

CD MAIN BOARD

CONTENTS

	PAGE
WIRING DIAGRAM CDM12.4	13-1
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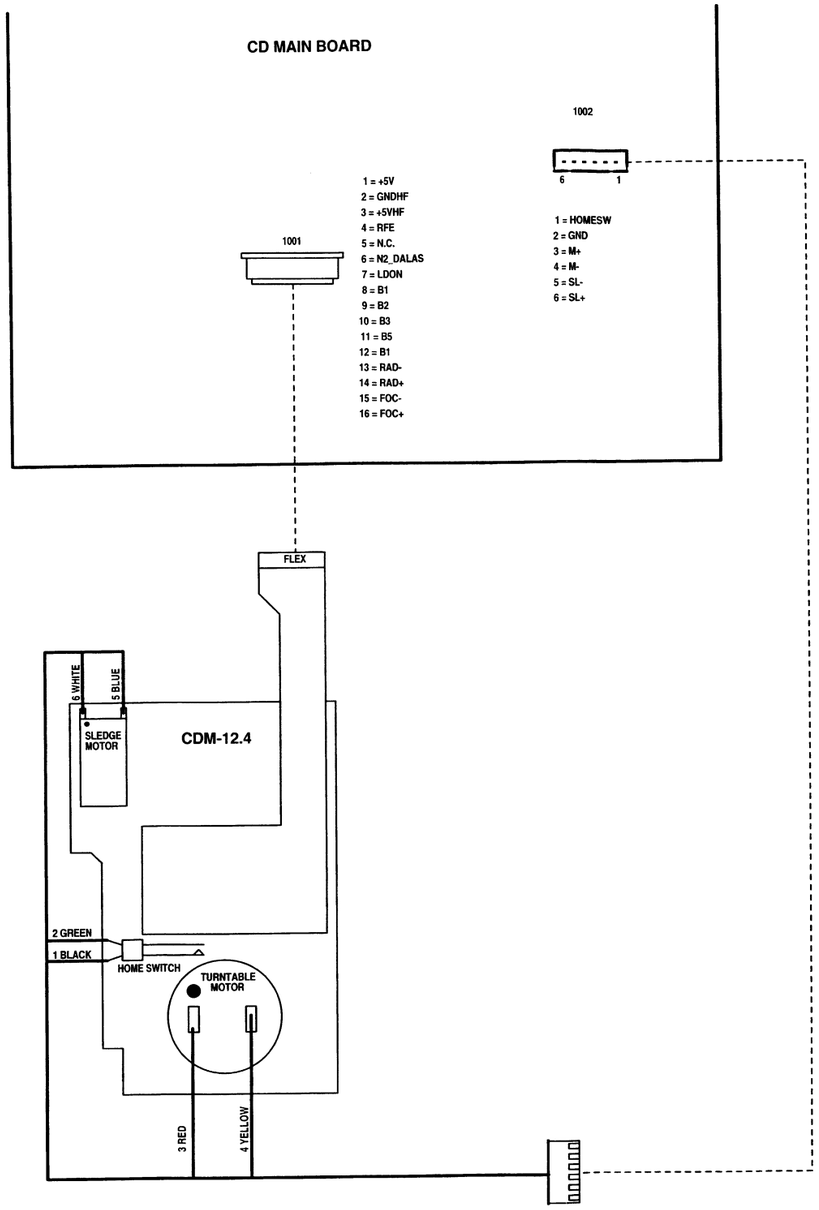
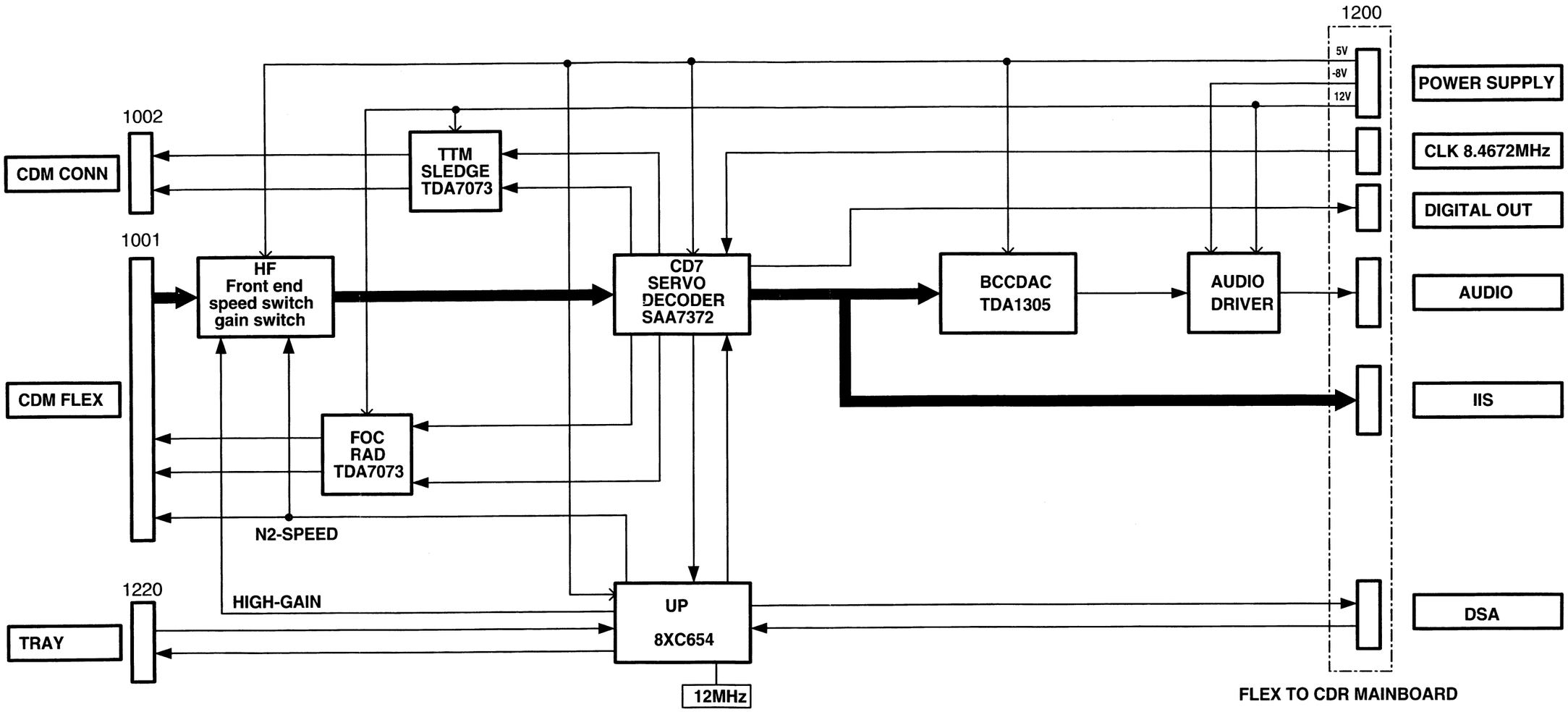
13-1

WIRING DIAGRAM CDM12.4



13-2

BLOCKDIAGRAM CD MAIN BOARD



13-3

1. SERVO-DECODER PART

TO CDM PANEL VIA FLEX CONNECTION

TURNTABLE AND SLEDGE CONTROL

RFE!

eyepattern

2.5V

0,5us/DIV

HGAIN

CDDA/CDR: 0V

RW: 5V

HGAIN!

N2-DALAS!

PLAYBACK: 5V

DUBBING: 0V

eyepattern

2.5V

0,5us/DIV

>800mVpp

LDON

NOT MOUNTED

N2-speed

N2-DALAS!

2/7220-41

HOMESW!

2/7220-22

PULSE DENSITY MODULATION

0.5uS/DIV

7180 SAA7372

VSSA1 VDDA1 VDDA2 VSSA2 VSS1 VDD1P VSS2 VDD2P VSS3 VDD3C

SUBCODE PROCESSOR

PEAK DETECT

INTERF & CONTROL

DEC UP INTERF

FRONT END

VERSATILE INTERF

VREF GEN

KILL

ADC

DIGITAL PLL

EFM MOD

TIMING

SRAM

OUTPUT STAGE

EBU INTERFACE

RAM ADDRESSER

MOTOR CONTROL

ERROR CORRECTOR

FLAGS

AUDIO PROCESSOR

SERIAL DATA INTERF

TEST

7160 TDA7073A

7161 TDA7073A

7107 BC848B

7108 BC848B

7110 BC848B

7111 BC848B

7130 BC848B

7131 BC858B

7132 BC848B

7104 BC848B

7105 BST82

7106 BC858B

7109 A 74HCU04

7109 B 74HCU04

7109 C 74HCU04

7109 D 74HCU04

7109 E 74HCU04

7109 F 74HCU04

vel 3 meer zwart
Kan ook weer kleur Raod
13-4

POWER SUPPLY

5260 BLM21A10 +5VHP!
2261 22u/16V
2262 22u/16V +5V!
1200 - 7 / 1200 - 9 — 5240 DSS306102Z — 2240 22u/16V +5V!
1200 - 8 — 5241 DSS306102Z — 2241 22u/16V +12V!
1200 -20 — 5242 DSS306102Z — 2242 22u/16V -8V!

DIGITAL OUT

1200 - 15 / 1200 - 14 — 5243 DSS306102Z — DOBM!

IIS

1200 - 13 — 5244 DSS306102Z — DAN2!
1200 - 10 — 5245 DSS306102Z — CLKN2!
1200 - 11 — 5246 DSS306102Z — WSN2!
1200 - 21 — 5247 DSS306102Z — CLKCD!
1200 - 12 / 1200 -22

FROM SERVO-DECODER PART

7240 TDA1305T

5248 BLM21A10, 22u/16V, 2243, 2244 100n
5249 BLM21A10, 2245 1000u/16V3, 2246 100n, 2247 100n
+5V!, GNDA!, 5V

VDDD VSSD VDDX VSSX VSSO VDDO VDDA VSSA

DAN2! CLKN2! WSN2!
DATA BCK WS TEST1 TEST2
SERIAL DATA INPUT
DAC
TIMING
LEFT OUTPUT STAGE
RIGHT OUTPUT STAGE
FILTCL FILTCR VOL VOR
2250 680p, 2251 680p
3240 22k, 3241 22k

CKSL1 CKSL2 SYSCLK RES CDEC DEEM1 DEEM2 MUSB DSMB ATSB VREF
11.2896MHz
2248 100n, 2249 1u/16V
CLK11!
NMUTE!
DAC-N2!

2.8MHz
CL 44,1KHz
WS LEFT CHANNEL RIGHT CHANNEL
DA MSB LSB
0.5uS/DIV

NMUTE!
N2-DALAS!
SDA!
SILD!
SCL!
RSTHA!
DSA_ACK!
DSA_DATA!
RESET!
DSA_STROBE!
DAC-N2!

7220 P8XC654XXA
P1-4 P1-3 P1-2 P1-1 P1-0 nc P0-0 P0-1 P0-2 VCC
P1-5 P1-6/SLA P1-7/SDA RST P3-0 nc P3-1 PS-2 / INT0 PS-3 / INT1 P3-4 P3-5
P0-4 P0-5 P0-6 P0-7 EA nc ALE PSEN P2-7 P2-6 P2-5
P3-6 P3-7 XTAL2 XTAL1 VSS P2-0 P2-1 P2-2 P2-3 P2-4

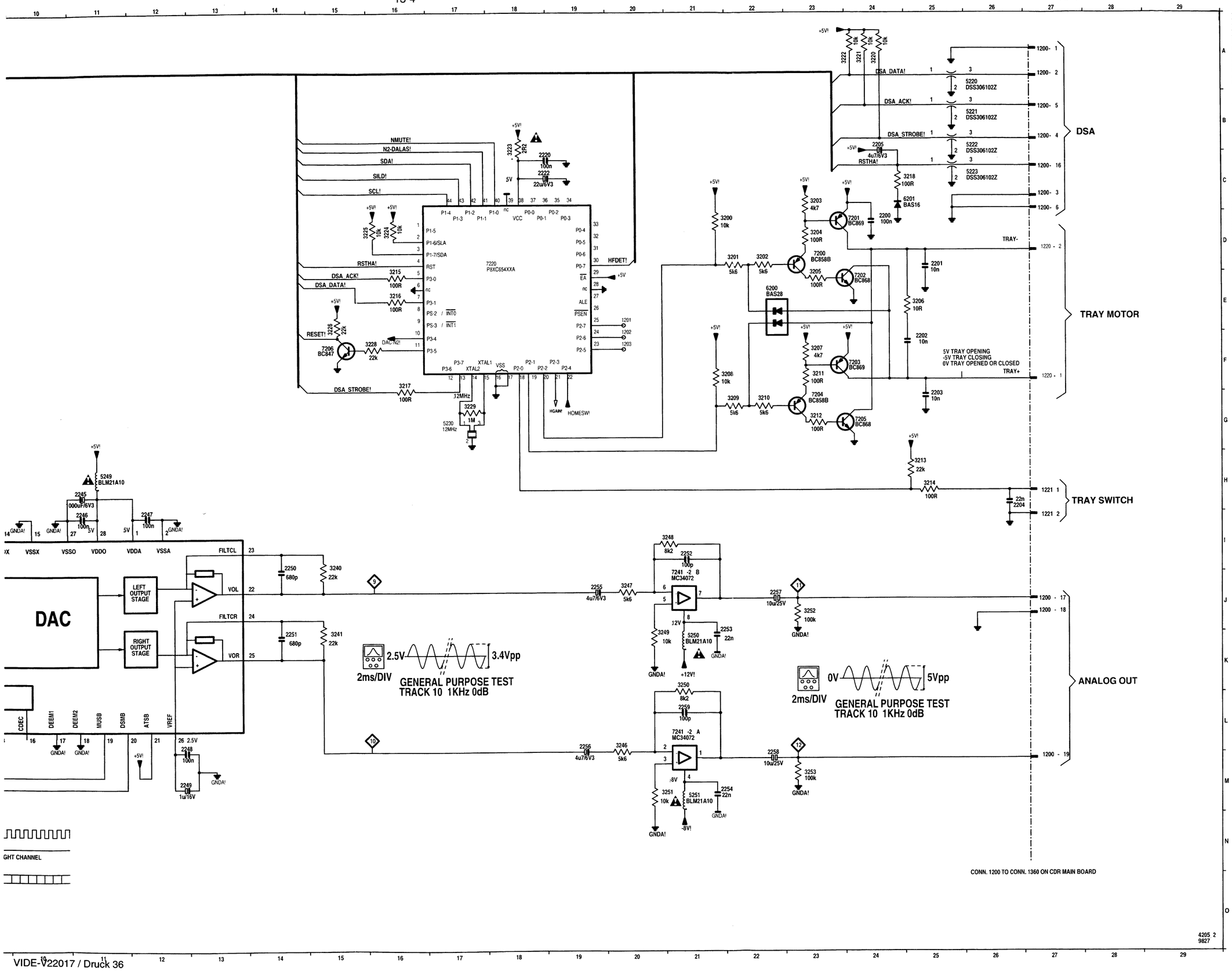
3223 2K2, 2220 100n, 2222 22u/6V3, 5V
3225 10k, 3224 10k
3215 100R, 3216 100R, 3217 100R
3226 22k, 7206 BC847, 3228 22k
12MHz, 5230 12MHz, 3229 1M
HFDET! +5V HGAIN! HOMESW!
1201 1202 1203

3200 10k, 3201 5k6, 3202 5k6, 3203 4k7, 3204 100R, 7200 BC858B, 3205 100R
6200 BAS28
3208 10k, 3209 5k6, 3210 5k6, 3207 4k7, 3211 100R, 7204 BC858B, 3212 100R

2.5V 3.4Vpp
2ms/DIV
GENERAL PURPOSE TEST
TRACK 10 1KHz 0dB

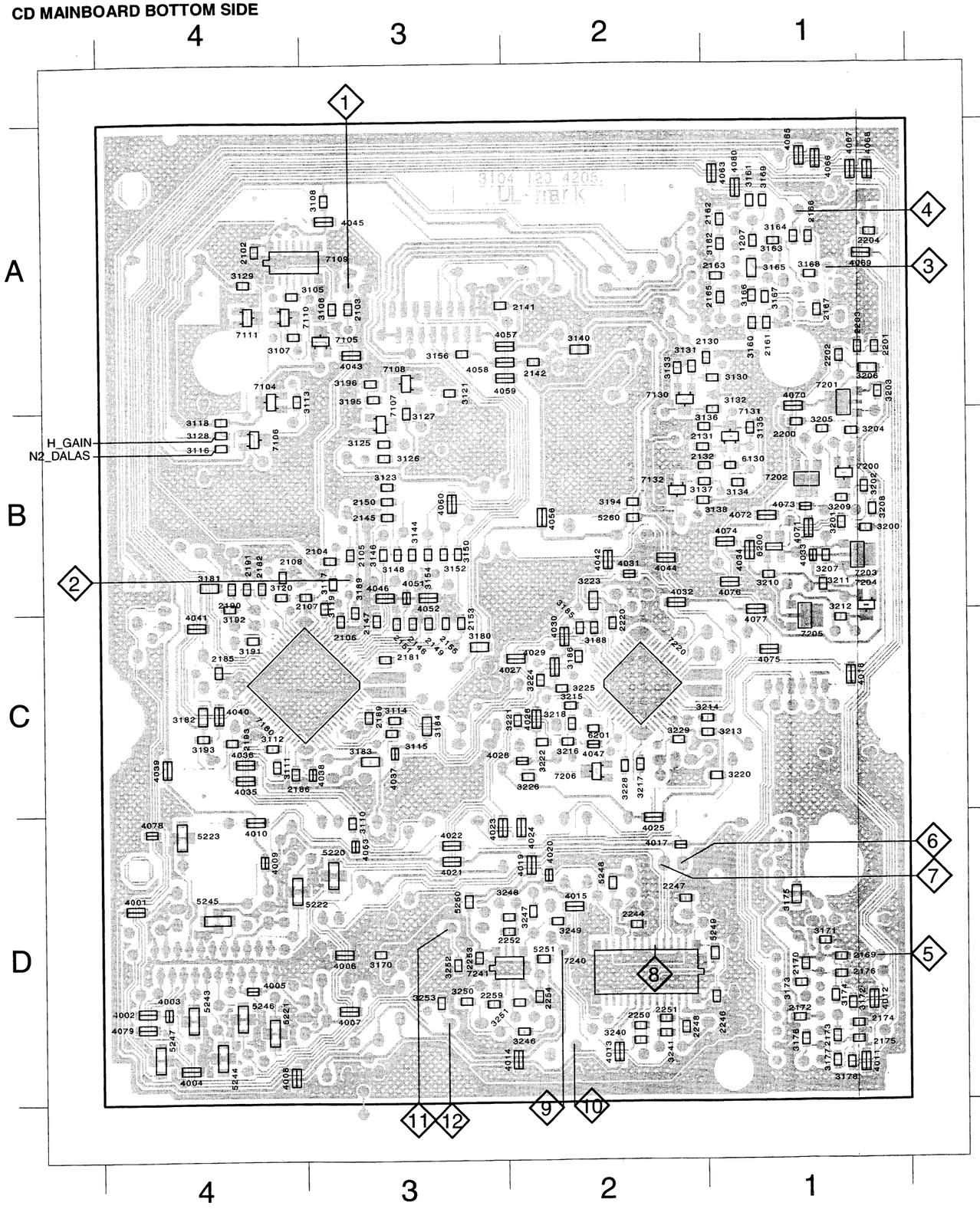
3248 8k2, 2252 100p, 7241 -2 B MC34072
2255 4u7/6V3, 3247 5k6, 3249 10k, 5250 BLM21A10, 2253 22n
2257 10u/25V, 3252 100k
3250 8k2, 2259 100p, 7241 -2 A MC34072
2256 4u7/6V3, 3246 5k6, 3251 10k, 5251 BLM21A10, 2254 22n
2258 10u/25V, 3253 100k
+12V! -8V! GNDA!
0V 2ms/DIV GENE TRAC

5205_2_R


NMUTE!
N2-DALAS!
SDA!
SILD!
SCL!
RSTHA!
DSA_ACK!
DSA_DATA!
DSA_STROBE!
RESET!
HFDET!
DAC_N2!
HGAIN!
HOMESW!
12MHz
7220
P8XC654XXA
DSA
TRAY MOTOR
TRAY SWITCH
ANALOG OUT
TRAY-
TRAY+
5V TRAY OPENING
-5V TRAY CLOSING
0V TRAY OPENED OR CLOSED
DAC
LEFT OUTPUT STAGE
RIGHT OUTPUT STAGE
FILTCL
FILTCR
VOL
VOR
2.5V
3.4Vpp
2ms/DIV
GENERAL PURPOSE TEST
TRACK 10 1KHz 0dB
0V
5Vpp
CONN. 1200 TO CONN. 1360 ON CDR MAIN BOARD
4205 2
9827

13-5

CD MAINBOARD BOTTOM SIDE



1207 A 1	3129 A 4	3229 C 2	4078 D 4
2102 A 4	3130 A 1	3240 D 2	4079 D 4
2103 A 3	3131 A 2	3241 D 2	4080 A 1
2104 B 3	3132 B 1	3246 D 2	5220 D 3
2105 B 3	3133 A 2	3247 D 2	5221 D 4
2106 C 3	3134 B 1	3248 D 2	5222 D 4
2107 B 3	3135 B 1	3249 D 2	5223 D 4
2108 B 4	3136 B 1	3250 D 3	5243 D 4
2130 A 1	3137 B 1	3251 D 2	5244 D 4
2131 B 2	3138 B 2	3252 D 3	5245 D 4
2132 B 1	3140 A 2	3253 D 3	5246 D 4
2141 A 3	3144 B 3	4001 D 4	5247 D 4
2142 A 2	3146 B 3	4002 D 4	5248 D 2
2145 B 3	3148 B 3	4003 D 4	5249 D 1
2146 C 3	3150 B 3	4004 D 4	5250 D 3
2147 C 3	3152 B 3	4005 D 4	5251 D 2
2149 C 3	3154 B 3	4006 D 3	5260 B 2
2150 B 3	3156 A 3	4007 D 3	6130 B 1
2151 C 3	3160 A 1	4008 D 4	6200 B 1
2153 C 3	3161 A 1	4009 D 4	6201 C 2
2155 C 3	3162 A 1	4010 D 4	7104 A 4
2161 A 1	3163 A 1	4011 D 1	7105 A 3
2162 A 1	3164 A 1	4012 D 1	7106 B 4
2163 A 1	3165 A 1	4013 D 2	7107 B 3
2165 A 1	3166 A 1	4014 D 2	7108 A 3
2166 A 1	3167 A 1	4015 D 2	7109 A 4
2167 A 1	3168 A 1	4017 D 2	7110 A 4
2169 D 1	3169 A 1	4018 C 1	7111 A 4
2170 D 1	3170 D 3	4019 D 2	7130 A 2
2172 D 1	3171 D 1	4020 D 2	7131 B 1
2173 D 1	3172 D 1	4021 D 3	7132 B 2
2174 D 1	3173 D 1	4022 D 3	7180 C 3
2175 D 1	3174 D 1	4023 D 3	7200 B 1
2176 D 1	3175 D 1	4024 D 2	7201 A 1
2181 C 3	3176 D 1	4025 D 2	7202 B 1
2182 B 4	3177 D 1	4026 C 2	7203 B 1
2185 C 4	3178 D 1	4027 C 2	7204 B 1
2186 C 4	3180 C 3	4028 C 2	7205 C 1
2189 C 3	3181 B 4	4029 C 2	7206 C 2
2190 B 4	3182 C 4	4030 C 2	7220 C 2
2191 B 4	3183 C 3	4031 B 2	7240 D 2
2193 C 4	3184 C 3	4032 B 2	7241 D 2
2200 B 1	3185 C 2	4033 B 1	
2201 A 1	3186 C 2	4034 B 1	
2202 A 1	3188 C 2	4035 C 4	
2203 A 1	3189 C 3	4036 C 4	
2204 A 1	3191 C 4	4037 C 3	
2220 C 2	3192 B 4	4038 C 3	
2244 D 2	3193 C 4	4039 C 4	
2246 D 1	3194 B 2	4040 C 4	
2247 D 2	3195 A 3	4041 C 4	
2248 D 2	3196 A 3	4042 B 2	
2250 D 2	3200 B 1	4043 A 3	
2251 D 2	3201 B 1	4044 B 2	
2252 D 2	3202 B 1	4045 A 3	
2253 D 3	3203 A 1	4046 B 3	
2254 D 2	3204 B 1	4047 C 2	
2259 D 3	3205 B 1	4051 B 3	
3105 A 4	3206 A 1	4052 B 3	
3106 A 3	3207 B 1	4053 D 3	
3107 A 4	3208 B 1	4056 B 2	
3108 A 3	3209 B 1	4057 A 2	
3110 D 3	3210 B 1	4058 A 2	
3111 C 4	3211 B 1	4059 A 2	
3112 C 4	3212 C 1	4060 B 3	
3113 A 4	3213 C 1	4063 A 1	
3114 C 3	3214 C 1	4065 A 1	
3115 C 3	3215 C 2	4066 A 1	
3116 B 4	3216 C 2	4067 A 1	
3117 B 3	3217 C 2	4068 A 1	
3118 B 4	3218 C 2	4069 A 1	
3119 B 3	3220 C 1	4070 A 1	
3120 B 4	3221 C 2	4071 B 1	
3121 A 3	3222 C 2	4072 B 1	
3123 B 3	3223 B 2	4073 B 1	
3125 B 3	3224 C 2	4074 B 1	
3126 B 3	3225 C 2	4075 C 1	
3127 B 3	3226 C 2	4076 B 1	
3128 B 4	3228 C 2	4077 C 1	

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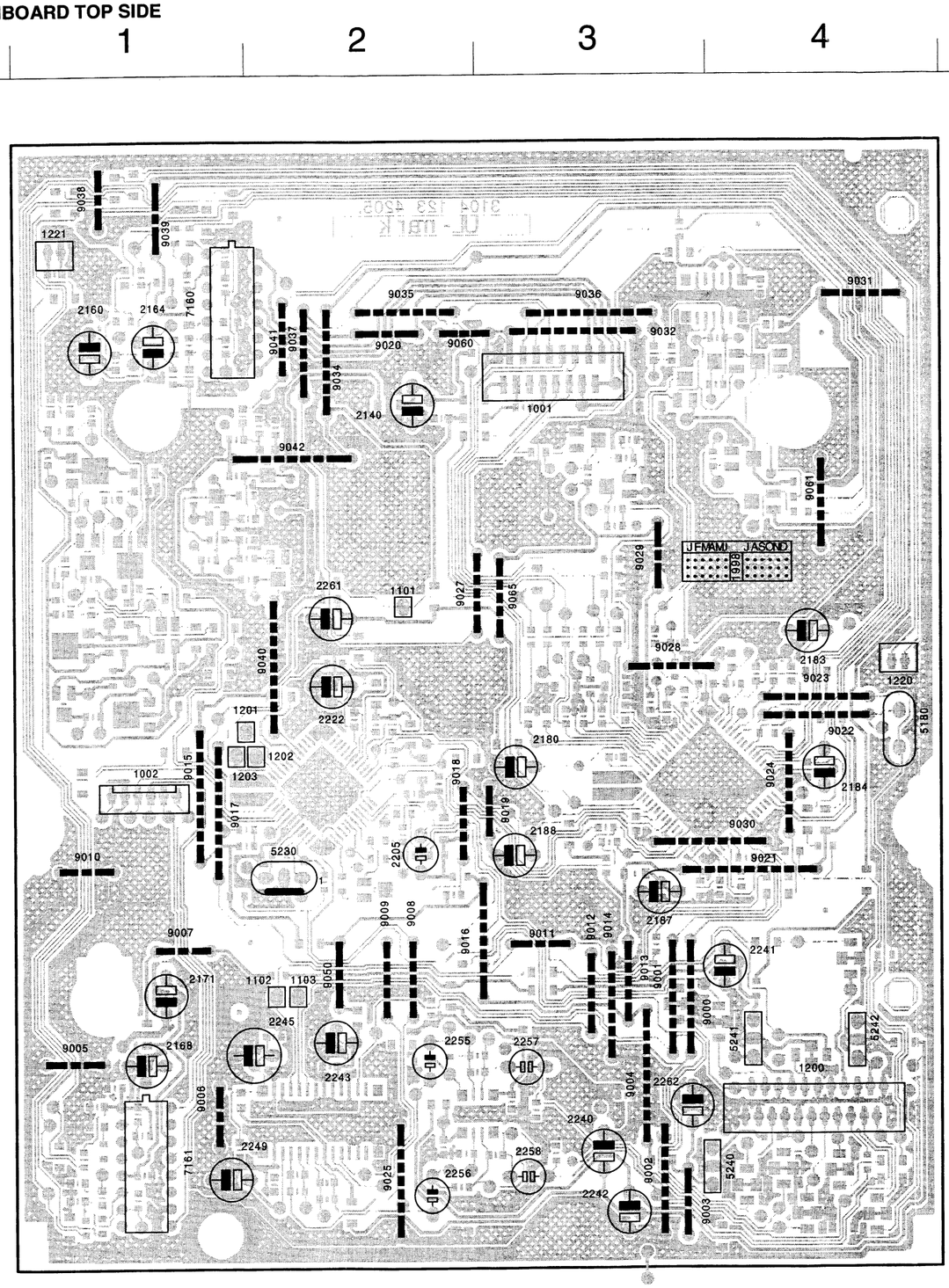
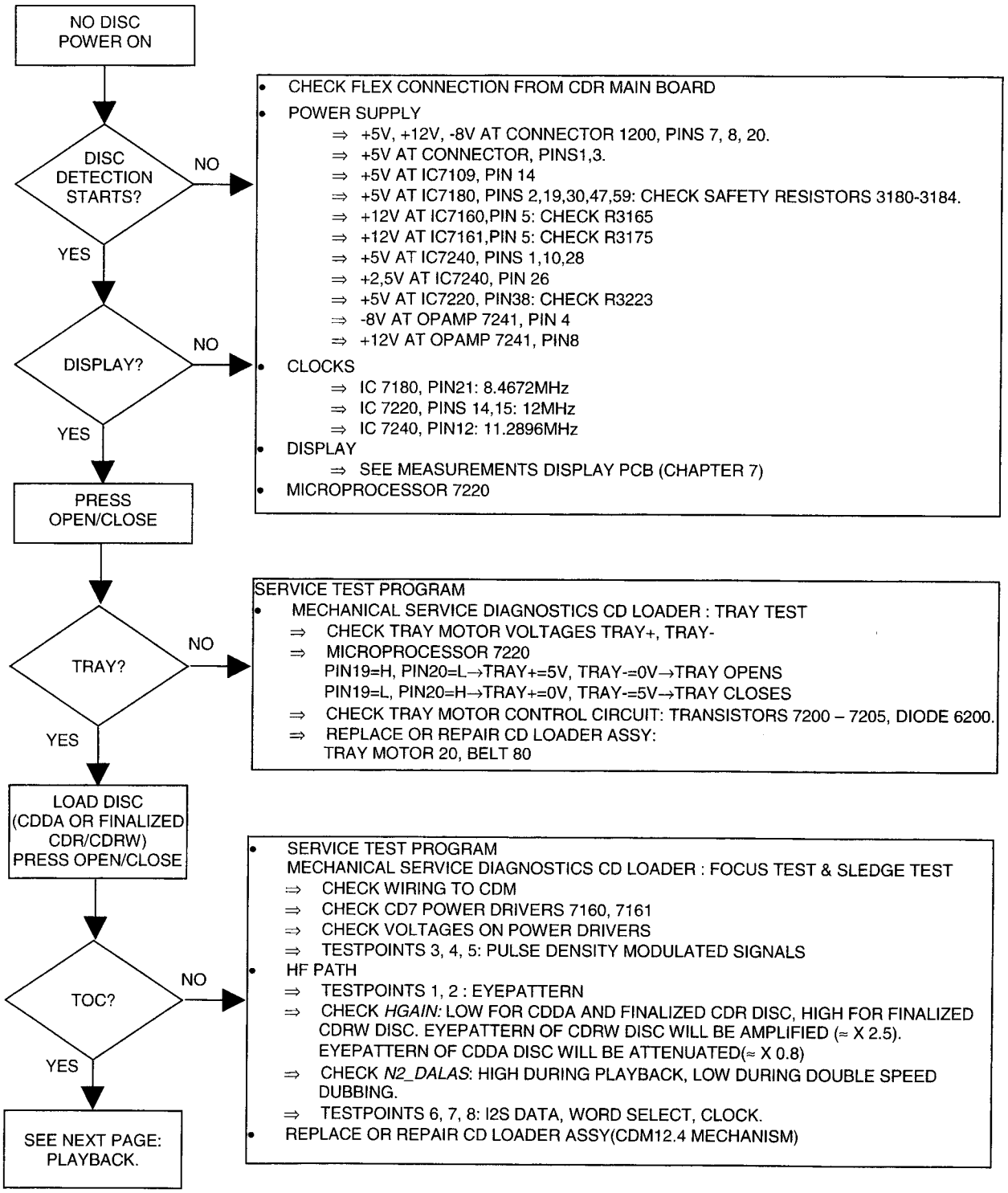
CD MAINBOARD TOP SIDE

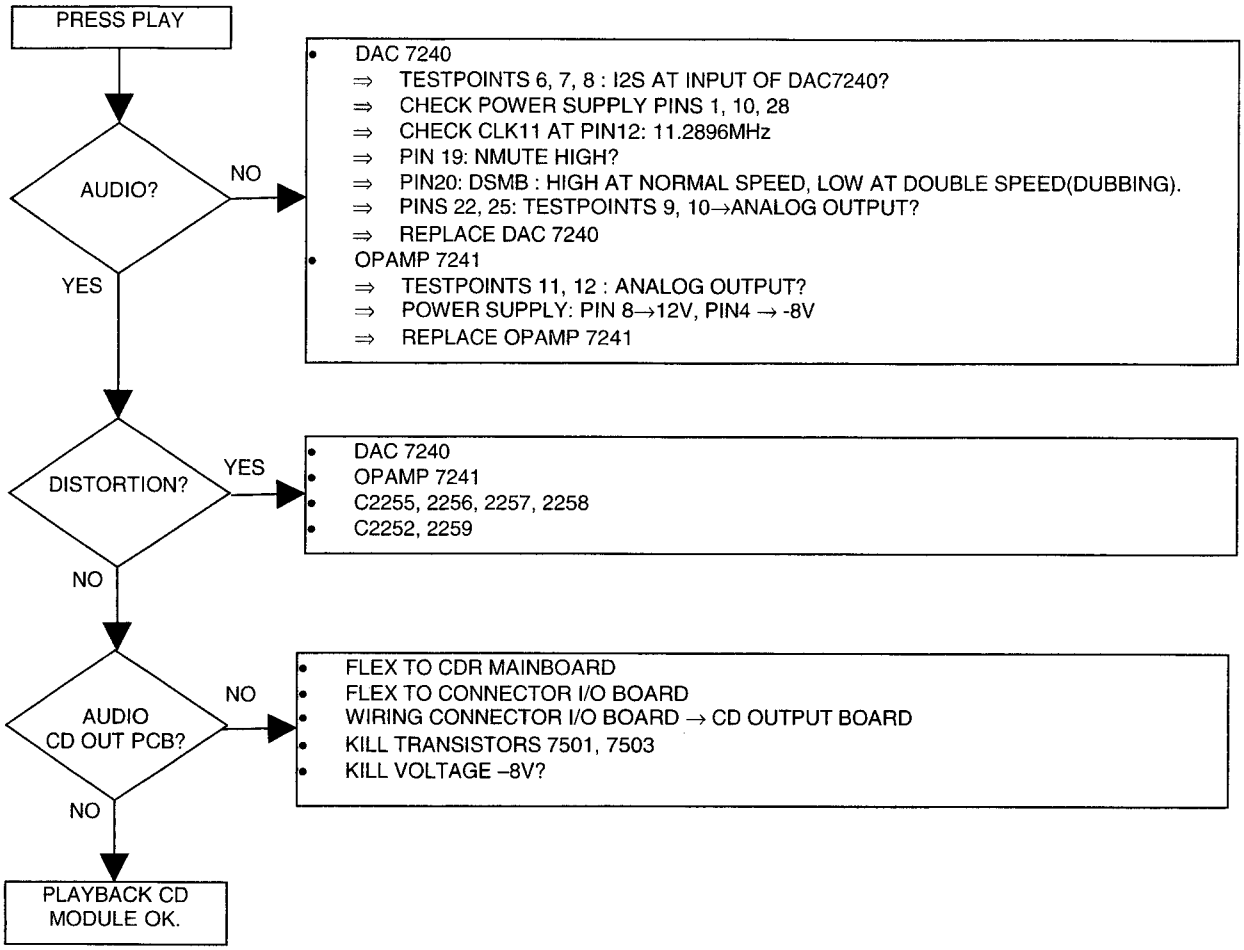


1001 A 3
1002 C 1
1101 B 2
1102 D 2
1103 D 2
1200 D 4
1201 C 1
1202 C 2
1203 C 1
1220 B 4
1221 A 1
2140 A 2
2160 A 1
2164 A 1
2168 D 1
2171 D 1
2180 C 3
2183 B 4
2184 C 4
2187 C 3
2188 C 3
2205 C 2
2222 B 2
2240 D 3
2241 D 4
2242 D 3
2243 D 2
2245 D 2
2249 D 1
2255 D 2
2256 D 2
2257 D 3
2258 D 3
2261 B 2
2262 D 3
5180 C 4
5230 C 2
5240 D 4
5241 D 4
5242 D 4
7160 A 1
7161 D 1
9000 D 3
9001 D 3
9002 D 3
9003 D 3
9004 D 3
9005 D 1
9006 D 1
9007 D 1
9008 D 2
9009 D 2
9010 C 1
9011 D 3
9012 D 3
9013 D 3
9014 D 3
9015 C 1
9016 D 3
9017 C 1
9018 C 2
9019 C 3
9020 A 2
9021 C 4
9022 C 4
9023 B 4
9024 C 4
9025 D 2
9027 B 2
9028 B 3
9029 B 3
9030 C 4
9031 A 4
9032 A 3
9034 A 2
9035 A 2
9036 A 3
9037 A 2
9038 A 1
9039 A 1
9040 B 2
9041 A 2
9042 A 2
9050 D 2
9060 A 2
9061 B 4
9065 B 3

FAULTFINDING GUIDE CD MODULE


NO DISC POWER ON
DISC DETECTION STARTS?
NO
YES
DISPLAY?
NO
YES
PRESS OPEN/CLOSE
TRAY?
NO
YES
LOAD DISC (CDDA OR FINALIZED CDR/CDRW) PRESS OPEN/CLOSE
TOC?
NO
YES
SEE NEXT PAGE: PLAYBACK.
• CHECK FLEX CONNECTION FROM CDR MAIN BOARD
• POWER SUPPLY
⇒ +5V, +12V, -8V AT CONNECTOR 1200, PINS 7, 8, 20.
⇒ +5V AT CONNECTOR, PINS1,3.
⇒ +5V AT IC7109, PIN 14
⇒ +5V AT IC7180, PINS 2,19,30,47,59: CHECK SAFETY RESISTORS 3180-3184.
⇒ +12V AT IC7160,PIN 5: CHECK R3165
⇒ +12V AT IC7161,PIN 5: CHECK R3175
⇒ +5V AT IC7240, PINS 1,10,28
⇒ +2,5V AT IC7240, PIN 26
⇒ +5V AT IC7220, PIN38: CHECK R3223
⇒ -8V AT OPAMP 7241, PIN 4
⇒ +12V AT OPAMP 7241, PIN8
• CLOCKS
⇒ IC 7180, PIN21: 8.4672MHz
⇒ IC 7220, PINS 14,15: 12MHz
⇒ IC 7240, PIN12: 11.2896MHz
• DISPLAY
⇒ SEE MEASUREMENTS DISPLAY PCB (CHAPTER 7)
• MICROPROCESSOR 7220
SERVICE TEST PROGRAM
• MECHANICAL SERVICE DIAGNOSTICS CD LOADER : TRAY TEST
⇒ CHECK TRAY MOTOR VOLTAGES TRAY+, TRAY-
⇒ MICROPROCESSOR 7220
PIN19=H, PIN20=L→TRAY+=5V, TRAY-=0V→TRAY OPENS
PIN19=L, PIN20=H→TRAY+=0V, TRAY-=5V→TRAY CLOSES
⇒ CHECK TRAY MOTOR CONTROL CIRCUIT: TRANSISTORS 7200 – 7205, DIODE 6200.
⇒ REPLACE OR REPAIR CD LOADER ASSY:
TRAY MOTOR 20, BELT 80
• SERVICE TEST PROGRAM
MECHANICAL SERVICE DIAGNOSTICS CD LOADER : FOCUS TEST & SLEDGE TEST
⇒ CHECK WIRING TO CDM
⇒ CHECK CD7 POWER DRIVERS 7160, 7161
⇒ CHECK VOLTAGES ON POWER DRIVERS
⇒ TESTPOINTS 3, 4, 5: PULSE DENSITY MODULATED SIGNALS
• HF PATH
⇒ TESTPOINTS 1, 2 : EYEPATTERN
⇒ CHECK HGAIN: LOW FOR CDDA AND FINALIZED CDR DISC, HIGH FOR FINALIZED CDRW DISC. EYEPATTERN OF CDRW DISC WILL BE AMPLIFIED (≈ X 2.5).
EYEPATTERN OF CDDA DISC WILL BE ATTENUATED(≈ X 0.8)
⇒ CHECK N2_DALAS: HIGH DURING PLAYBACK, LOW DURING DOUBLE SPEED DUBBING.
⇒ TESTPOINTS 6, 7, 8: I2S DATA, WORD SELECT, CLOCK.
• REPLACE OR REPAIR CD LOADER ASSY(CDM12.4 MECHANISM)

FAULTFINDING GUIDE PLAYBACK


PRESS PLAY
AUDIO?
NO
YES
• DAC 7240
⇒ TESTPOINTS 6, 7, 8 : I2S AT INPUT OF DAC7240?
⇒ CHECK POWER SUPPLY PINS 1, 10, 28
⇒ CHECK CLK11 AT PIN12: 11.2896MHz
⇒ PIN 19: NMUTE HIGH?
⇒ PIN20: DSMB : HIGH AT NORMAL SPEED, LOW AT DOUBLE SPEED(DUBBING).
⇒ PINS 22, 25: TESTPOINTS 9, 10→ANALOG OUTPUT?
⇒ REPLACE DAC 7240
• OPAMP 7241
⇒ TESTPOINTS 11, 12 : ANALOG OUTPUT?
⇒ POWER SUPPLY: PIN 8→12V, PIN4 → -8V
⇒ REPLACE OPAMP 7241
DISTORTION?
YES
NO
• DAC 7240
• OPAMP 7241
• C2255, 2256, 2257, 2258
• C2252, 2259
AUDIO
CD OUT PCB?
NO
NO
• FLEX TO CDR MAINBOARD
• FLEX TO CONNECTOR I/O BOARD
• WIRING CONNECTOR I/O BOARD → CD OUTPUT BOARD
• KILL TRANSISTORS 7501, 7503
• KILL VOLTAGE –8V?
PLAYBACK CD
MODULE OK.

ELECTRICAL PARTSLIST

CDR MAIN BOARD

MISCELLANEOUS

1001	4822 214 12825	PCB ASSY MAIN 4203 CDR765
1101	4822 267 60409	FLEX CONN 22P FEMALE
1102	4822 267 60409	FLEX CONN 22P FEMALE
1143	4822 242 82075	CSTCS16,00MXC03-TC
1177	4822 242 10557	XTL.RESONATOR 32 MHz .
1251	4822 242 10757	33.868 000MHz SM 20P CX-11F
1290	4822 267 51454	FLEX CONN. 11P FEMALE
1320	4822 242 10236	LN-G102-139 (16MHz)
1360	4822 265 11154	FLEX CONN 22P
1400	4822 267 10939	FLEX CONN. 20P
1500	4822 267 10939	FLEX.CONN. 20P
1520	4822 218 11487	OPTICAL INPUT GP1F32R
1530	4822 265 11151	ANALOG INPUT/OUTPUT CINCH
1531	4822 267 31448	DIGITAL INPUT/OUTPUT CINCH

CAPACITORS

2104	4822 126 14104	82nF 10% 0805 16V
2105	5322 122 32654	22nF 10% 63V
2106	4822 126 13296	100nF 10% 16V
2107	4822 124 80483	47µF 20% 6.3V
2108	4822 126 14104	82nF 10% 0805 16V
2109	4822 126 13482	470nF 80/20% 16V
2110	4822 126 13482	470nF 80/20% 16V
2111	4822 126 14104	82nF 10% 0805 16V
2112	4822 126 14104	82nF 10% 0805 16V
2113	4822 124 11353	1µF 20% 16V
2114	4822 124 11353	1µF 20% 16V
2115	4822 126 13482	470nF 80/20% 16V
2116	4822 126 13482	470nF 80/20% 16V
2117	5322 122 32654	22nF 10% 63V
2118	5322 122 32654	22nF 10% 63V
2119	4822 126 14104	82nF 10% 0805 16V
2120	5322 122 32654	22nF 10% 63V
2130	5322 122 32654	22nF 10% 63V
2131	4822 124 80483	47µF 20% 6.3V
2132	5322 122 32654	22nF 10% 63V
2134	4822 122 33575	220pF 5% 50V
2135	4822 122 33575	220pF 5% 50V
2136	4822 122 33575	220pF 5% 50V
2138	4822 122 33575	220pF 5% 50V
2139	5322 116 80853	560pF 5% 63V
2140	5322 122 32654	22nF 10% 63V
2156	5322 126 10223	4.7nF 10% 63V
2157	5322 122 32654	22nF 10% 63V
2170	5322 122 32654	22nF 10% 63V
2171	4822 124 40433	47µF 20% 25V
2172	4822 122 33891	3.3nF 10% 63V
2173	4822 122 33891	3.3nF 10% 63V
2174	4822 122 33891	3.3nF 10% 63V
2175	5322 122 34123	1nF 10% 50V
2176	4822 126 13296	100nF 10% 16V
2177	5322 122 32659	33pF 5% 50V
2178	5322 122 32659	33pF 5% 50V
2179	4822 126 13296	100nF 10% 16V
2180	5322 122 32654	22nF 10% 63V
2181	5322 122 32654	22nF 10% 63V
2182	5322 122 32654	22nF 10% 63V
2183	4822 126 13296	100nF 10% 16V
2184	4822 122 33177	10nF 20% 50V
2193	4822 122 33177	10nF 20% 50V
2194	4822 122 33177	10nF 20% 50V
2195	5322 122 32654	22nF 10% 63V
2200	4822 122 32646	5.6nF 10% 50V
2203	5322 122 32654	22nF 10% 63V
2204	5322 122 32654	22nF 10% 63V
2205	5322 122 32654	22nF 10% 63V
2206	4822 122 32627	2.7nF 10% 50V
2207	5322 126 10465	3.9nF 10% 50V 0805 CER2
2208	5322 116 80853	560pF 5% 63V
2210	5322 122 32654	22nF 10% 63V
2211	4822 124 80483	47µF 20% 6.3V
2214	4822 126 13692	47pF 1% 63V
2215	4822 122 33177	10nF 20% 50V
2216	4822 122 33177	10nF 20% 50V
2217	5322 122 32654	22nF 10% 63V
2218	5322 122 32654	22nF 10% 63V
2219	5322 122 32654	22nF 10% 63V
2220	5322 122 32654	22nF 10% 63V
2221	5322 122 32654	22nF 10% 63V
2222	5322 122 32654	22nF 10% 63V
2223	4822 124 80483	47µF 20% 6.3V
2224	4822 126 13296	100nF 10% 16V
2225	5322 122 32448	10pF 5% 50V
2226	5322 122 32448	10pF 5% 50V
2227	4822 126 12105	33nF 5% 63V
2228	4822 126 12105	33nF 5% 63V
2229	4822 122 33177	10nF 20% 50V
2230	5322 122 32654	22nF 10% 63V
2231	5322 122 32654	22nF 10% 63V
2232	4822 126 13618	330pF 1% 63V
2233	4822 126 13618	330pF 1% 63V
2234	4822 126 13618	330pF 1% 63V
2235	5322 122 32654	22nF 10% 63V
2236	4822 126 13618	330pF 1% 63V
2237	4822 126 13618	330pF 1% 63V
2238	4822 126 13618	330pF 1% 63V
2239	4822 126 13618	330pF 1% 63V
2240	5322 122 32654	22nF 10% 63V
2241	4822 126 13618	330pF 1% 63V
2242	5322 122 32654	22nF 10% 63V
2243	4822 124 11445	47µF 20% 10V
2244	5322 122 32654	22nF 10% 63V
2245	5322 122 32654	22nF 10% 63V
2246	4822 126 13296	100nF 10% 16V
2247	4822 124 80483	47µF 20% 6.3V
2248	5322 122 32654	22nF 10% 63V
2250	5322 122 32654	22nF 10% 63V
2251	4822 126 13486	15pF 2% 63V
2252	4822 126 13486	15pF 2% 63V
2255	5322 122 32654	22nF 10% 63V
2256	5322 122 32654	22nF 10% 63V
2262	4822 126 10326	180pF 5% 63V
2267	4822 126 13296	100nF 10% 16V
2268	4822 126 13296	100nF 10% 16V
2270	5322 122 32654	22nF 10% 63V
2280	5322 122 32654	22nF 10% 63V
2281	5322 122 32658	22pF 5% 50V
2282	5322 122 32654	22nF 10% 63V
2283	4822 126 13296	100nF 10% 16V
2284	5322 122 32654	22nF 10% 63V
2285	4822 126 13296	100nF 10% 16V
2286	5322 122 32658	22pF 5% 50V
2287	5322 122 32658	22pF 5% 50V
2288	4822 126 12105	33nF 5% 63V
2292	4822 126 12105	33nF 5% 63V
2296	4822 126 12105	33nF 5% 63V

2297	4822 126 13296	100nF 10% 16V
2300	4822 126 13482	470nF 80/20% 16V
2301	5322 122 32654	22nF 10% 63V
2302	4822 126 13482	470nF 80/20% 16V
2303	4822 126 13482	470nF 80/20% 16V
2304	5322 122 32654	22nF 10% 63V
2305	4822 126 13482	470nF 80/20% 16V
2321	5322 122 32654	22nF 10% 63V
2322	5322 122 32654	22nF 10% 63V
2323	5322 122 32654	22nF 10% 63V
2324	5322 122 32654	22nF 10% 63V
2325	4822 126 13692	47pF 1% 63V
2326	4822 126 13692	47pF 1% 63V
2327	4822 122 33177	10nF 20% 50V
2329	5322 122 32654	22nF 10% 63V
2330	4822 126 13296	100nF 10% 16V
2334	5322 122 32654	22nF 10% 63V
2336	4822 126 13692	47pF 1% 63V
2339	4822 124 11445	47µF 20% 10V
2340	5322 122 32654	22nF 10% 63V
2341	5322 122 32654	22nF 10% 63V
2342	5322 122 32654	22nF 10% 63V
2350	4822 126 12105	33nF 5% 63V
2400	5322 122 32654	22nF 10% 63V
2403	5322 122 32654	22nF 10% 63V
2404	5322 122 32654	22nF 10% 63V
2405	4822 124 42242	330µF 20% 6.3V
2406	5322 122 32654	22nF 10% 63V
2436	4822 124 80483	47µF 20% 6.3V
2437	4822 124 80483	47µF 20% 6.3V
2439	4822 124 80483	47µF 20% 6.3V
2442	4822 124 80483	47µF 20% 6.3V
2462	4822 124 80483	47µF 20% 6.3V
2463	4822 124 80483	47µF 20% 6.3V
2464	5322 122 32654	22nF 10% 63V
2465	5322 122 34123	1nF 10% 50V
2466	4822 126 12102	330 nF 10% 16V 0603
2467	4822 126 12105	33nF 5% 63V
2468	5322 122 32654	22nF 10% 63V
2469	4822 126 13296	100nF 10% 16V
2470	5322 122 34123	1nF 10% 50V
2501	4822 124 41579	10µF 20% 50V
2502	4822 126 12105	33nF 5% 63V
2503	4822 126 12105	33nF 5% 63V
2504	5322 122 32654	22nF 10% 63V
2505	5322 122 33538	150pF 2% 63V
2506	5322 122 32654	22nF 10% 63V
2507	5322 122 32654	22nF 10% 63V
2509	5322 122 32654	22nF 10% 63V
2510	5322 122 32531	100pF 5% 50V
2511	5322 122 32531	100pF 5% 50V
2512	5322 122 32659	33pF 5% 50V
2513	5322 122 32659	33pF 5% 50V
2600	5322 122 32654	22nF 10% 63V
2601	5322 122 32654	22nF 10% 63V
2602	5322 122 32654	22nF 10% 63V
2603	5322 122 32654	22nF 10% 63V
2604	5322 122 32654	22nF 10% 63V
2605	5322 122 32654	22nF 10% 63V
2606	5322 122 32654	22nF 10% 63V
2607	5322 122 32654	22nF 10% 63V
2608	5322 122 32654	22nF 10% 63V
2609	5322 122 32654	22nF 10% 63V
2610	5322 122 32654	22nF 10% 63V
2611	4822 126 13694	68pF 1% 63V
2612	4822 126 13694	68pF 1% 63V
2613	5322 122 32654	22nF 10% 63V
2614	5322 122 32654	22nF 10% 63V
2615	4822 124 40246	4.7µF 20% 63V DXH=5X11
2616	4822 124 40246	4.7µF 20% 63V DXH=5X11
2617	4822 124 40433	47µF 20% 25V
2618	4822 124 11445	47µF 20% 10V
2619	4822 124 40433	47µF 20% 25V
2620	4822 124 41829	1000µF 20% 6.3V
2621	4822 124 11445	47µF 20% 10V
2622	4822 124 80865	10µF 20% 25V
2623	4822 124 80865	10µF 20% 25V
2650	5322 122 32654	22nF 10% 63V
2651	5322 122 32654	22nF 10% 63V
2652	5322 122 32654	22nF 10% 63V
2653	5322 122 32654	22nF 10% 63V
2654	5322 122 32531	100pF 5% 50V
2655	5322 122 32531	100pF 5% 50V
2656	5322 126 10184	680P 5% 50V.
2657	5322 126 10184	680P 5% 50V.
2658	5322 122 32654	22nF 10% 63V
2659	5322 122 32654	22nF 10% 63V
2660	5322 122 32654	22nF 10% 63V
2661	5322 122 32654	22nF 10% 63V
2662	5322 122 32654	22nF 10% 63V
2663	4822 124 41579	10µF 20% 50V
2664	4822 124 41829	1000µF 20% 6.3V
2665	4822 124 80865	10µF 20% 25V
2666	4822 124 80865	10µF 20% 25V
2667	4822 124 40246	4.7µF 20% 63V DXH=5X11
2668	4822 124 40246	4.7µF 20% 63V DXH=5X11
2670	5322 122 32531	100pF 5% 50V
2671	5322 122 32531	100pF 5% 50V
2672	5322 122 32531	100pF 5% 50V
2673	5322 122 32531	100pF 5% 50V
2674	5322 122 32531	100pF 5% 50V
2675	5322 122 32531	100pF 5% 50V
2676	5322 122 32531	100pF 5% 50V
2677	5322 122 32531	100pF 5% 50V

RESISTORS

3108	4822 051 20472	4k7 5% 0.1W
3109	4822 117 10834	47k 1% 0.1W
3111	4822 051 20184	180k 5% 0.1W
3112	4822 051 20474	470k 5% 0.1W
3120	4822 051 20273	27k 5% 0.1W
3121	4822 051 20474	470k 5% 0.1W
3122	4822 051 20223	22k 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124	4822 051 20333	33k 5% 0.1W
3133	4822 051 20105	1M 5% 0.1W
3134	4822 051 20333	33k 5% 0.1W
3135	4822 051 20153	15k 5% 0.1W
3136	4822 117 10833	10k 1% 0.1W
3137	4822 051 20153	15k 5% 0.1W
3138	4822 117 10833	10k 1% 0.1W
3139	4822 051 20752	7k5 5% 0.1W
3140	4822 117 10834	47k 1% 0.1W
3142	4822 117 10833	10k 1% 0.1W
3143	4822 051 20105	1M 5% 0.1W
3144	4822 117 10833	10k 1% 0.1W
3149	4822 117 11449	2k2 1% 0.1W
3152	4822 051 20104	100k 5% 0.1W
3153	4822 051 10102	1k 2% 0.25W
3154	4822 051 10102	1k 2% 0.25W
3155	4822 051 20105	1M 5% 0.1W
3156	4822 051 20101	100Ω 5% 0.1W
3157	4822 051 20101	100Ω 5% 0.1W
3158	4822 051 20101	100Ω 5% 0.1W
3160	4822 051 20223	22k 5% 0.1W
3161	4822 051 20105	1M 5% 0.1W
3162	4822 051 20105	1M 5% 0.1W
3163	4822 051 20393	39k 5% 0.1W
3164	4822 051 20223	22k 5% 0.1W

3165	4822 051 20101	100Ω 5% 0.1W
3166	4822 051 20393	39k 5% 0.1W
3168	4822 051 20101	100Ω 5% 0.1W
3169	4822 051 20101	100Ω 5% 0.1W
3171	4822 051 20121	120Ω 5% 0.1W
3172	4822 051 20105	1M 5% 0.1W
3173	4822 051 20101	100Ω 5% 0.1W
3174	4822 051 20101	100Ω 5% 0.1W
3175	4822 051 20101	100Ω 5% 0.1W
3176	4822 051 20101	100Ω 5% 0.1W
3177	4822 051 20101	100Ω 5% 0.1W
3178	4822 051 20223	22k 5% 0.1W
3179	4822 051 20101	100Ω 5% 0.1W
3180	4822 117 10833	10k 1% 0.1W
3181	4822 051 20562	5k6 5% 0.1W 0805
3182	4822 051 20562	5k6 5% 0.1W 0805
3183	4822 051 20472	4k7 5% 0.1W
3184	4822 051 20101	100Ω 5% 0.1W
3185	4822 051 20101	100Ω 5% 0.1W
3186	4822 117 10833	10k 1% 0.1W
3187	4822 051 10102	1k 2% 0.25W
3188	4822 117 10833	10k 1% 0.1W
3189	4822 051 20109	10Ω 5% 0.1W
3190	4822 117 10833	10k 1% 0.1W
3191	4822 051 20562	5k6 5% 0.1W 0805
3192	4822 051 20562	5k6 5% 0.1W 0805
3193	4822 051 20472	4k7 5% 0.1W
3194	4822 051 20101	100Ω 5% 0.1W
3195	4822 051 20101	100Ω 5% 0.1W
3196	5322 117 11726	10Ω 5%
3201	4822 051 20223	22k 5% 0.1W
3202	4822 051 20393	39k 5% 0.1W
3203	4822 051 20109	10Ω 5% 0.1W
3204	4822 117 11454	820Ω 1% 0.1W
3205	4822 117 11504	270Ω 1% 0.1W
3206	4822 051 20105	1M 5% 0.1W
3208	4822 051 20229	22Ω 5% 0.1W
3209	4822 051 20223	22k 5% 0.1W
3210	4822 051 20393	39k 5% 0.1W
3211	4822 051 20109	10Ω 5% 0.1W
3212	4822 117 11454	820Ω 1% 0.1W
3213	4822 051 20472	4k7 5% 0.1W
3215	4822 117 10833	10k 1% 0.1W
3216	4822 051 20101	100Ω 5% 0.1W
3217	4822 051 20101	100Ω 5% 0.1W
3218	4822 051 20101	100Ω 5% 0.1W
3219	4822 051 20101	100Ω 5% 0.1W
3220	4822 051 20101	100Ω 5% 0.1W
3221	4822 051 20472	4k7 5% 0.1W
3222	4822 051 20101	100Ω 5% 0.1W
3223	4822 051 20229	22Ω 5% 0.1W
3224	4822 051 10102	1k 2% 0.25W
3225	4822 051 10102	1k 2% 0.25W
3226	4822 117 11454	820Ω 1% 0.1W
3227	4822 051 20561	560Ω 5% 0.1W
3228	4822 117 10833	10k 1% 0.1W
3229	4822 117 10833	10k 1% 0.1W
3230	4822 051 20472	4k7 5% 0.1W
3231	4822 117 11751	16k RC12H 1% 0805
3232	4822 117 11145	4k7 1% 0.1W
3233	4822 117 10839	130k 1% 0.1W
3234	4822 117 10833	10k 1% 0.1W
3235	4822 117 11751	16k RC12H 1% 0805
3236	4822 117 11145	4k7 1% 0.1W
3237	4822 117 10833	10k 1% 0.1W
3238	4822 117 10833	10k 1% 0.1W
3239	4822 117 10839	130k 1% 0.1W
3240	4822 117 10839	130k 1% 0.1W
3241	4822 051 20472	4k7 5% 0.1W
3242	4822 051 20105	1M 5% 0.1W
3243	4822 051 20564	560k 5% 0.1W
3244	4822 117 11449	2k2 1% 0.1W
3245	4822 051 20104	100k 5% 0.1W
3246	4822 051 20394	390k 5% 0.1W
3247	4822 117 11503	220Ω 1% 0.1W
3248	4822 051 20223	22k 5% 0.1W
3249	4822 051 20104	100k 5% 0.1W
3250	4822 051 20101	100Ω 5% 0.1W
3251	4822 051 20223	22k 5% 0.1W
3252	4822 051 20223	22k 5% 0.1W
3253	4822 051 20223	22k 5% 0.1W
3254	4822 051 20472	4k7 5% 0.1W
3255	4822 117 11449	2k2 1% 0.1W
3256	4822 051 20339	33Ω 5% 0.1W
3257	4822 051 20339	33Ω 5% 0.1W
3259	4822 117 10833	10k 1% 0.1W
3260	4822 117 11139	1k5 1% 0.1W
3261	4822 117 11449	2k2 1% 0.1W
3262	4822 051 20101	100Ω 5% 0.1W
3263	4822 117 10834	47k 1% 0.1W
3264	4822 051 10102	1k 2% 0.25W
3265	4822 051 10102	1k 2% 0.25W
3266	4822 051 10102	1k 2% 0.25W
3267	4822 117 10833	10k 1% 0.1W
3268	4822 051 20392	3k9 5% 0.1W
3269	4822 051 10102	1k 2% 0.25W
3270	4822 117 10965	18k 1% 0.1W
3271	4822 117 10965	18k 1% 0.1W
3272	4822 117 10965	18k 1% 0.1W
3273	4822 051 10102	1k 2% 0.25W
3274	4822 117 10965	18k 1% 0.1W
3275	4822 051 20223	22k 5% 0.1W
3276	4822 051 20223	22k 5% 0.1W
3277	4822 051 20223	22k 5% 0.1W
3279	4822 051 10102	1k 2% 0.25W
3280	4822 051 10102	1k 2% 0.25W
3281	4822 051 10102	1k 2% 0.25W
3282	4822 051 10102	1k 2% 0.25W
3283	4822 051 10102	1k 2% 0.25W
3284	4822 051 20479	47Ω 5% 0.1W
3285	4822 051 20562	5k6 5% 0.1W 0805
3286	4822 051 20562	5k6 5% 0.1W 0805
3287	4822 051 10102	1k 2% 0.25W
3288	4822 051 10102	1k 2% 0.25W
3289	4822 051 20479	47Ω 5% 0.1W
3290	4822 051 20562	5k6 5% 0.1W 0805
3291	4822 051 20562	5k6 5% 0.1W 0805
3292	4822 051 10102	1k 2% 0.25W
3293	4822 051 10102	1k 2% 0.25W
3294	4822 051 20479	47Ω 5% 0.1W
3295	4822 051 20562	5k6 5% 0.1W 0805
3296	4822 051 20562	5k6 5% 0.1W 0805
3297	4822 117 11503	220Ω 1% 0.1W
3298	4822 117 11503	220Ω 1% 0.1W
3299	4822 051 20229	22Ω 5% 0.1W
3300	4822 051 20104	100k 5% 0.1W
3301	4822 051 20684	680k 5% 0.1W
3302	4822 051 20471	470Ω 5% 0.1W
3303	4822 051 10102	1k 2% 0.25W
3304	4822 051 20104	100k 5% 0.1W
3305	4822 051 20684	680k 5% 0.1W
3306	4822 051 20471	470Ω 5% 0.1W
3307	4822 051 10102	1k 2% 0.25W
3312	4822 117 10833	10k 1% 0.1W
3313	4822 117 10833	10k 1% 0.1W
3314	4822 117 10833	10k 1% 0.1W
3316	4822 117 10833	10k 1% 0.1W
3318	4822 117 10833	10k 1% 0.1W

3322	4822 117 10833	10k 1% 0.1W
3323	4822 051 20105	1M 5% 0.1W
3326	4822 051 20104	100k 5% 0.1W
3327	4822 117 10833	10k 1% 0.1W
3328	4822 117 11507	6k8 1% 0.1W
3330	4822 051 20101	100Ω 5% 0.1W
3332	4822 051 10102	1k 2% 0.25W
3333	4822 051 10102	1k 2% 0.25W
3334	4822 117 10833	10k 1% 0.1W
3350	4822 051 20472	4k7 5% 0.1W
3361	4822 117 10833	10k 1% 0.1W
3362	4822 117 10833	10k 1% 0.1W
3363	4822 117 10833	10k 1% 0.1W
3364	4822 117 10833	10k 1% 0.1W
3380	4822 117 10833	10k 1% 0.1W
3443	4822 051 20223	22k 5% 0.1W
3444	4822 117 10833	10k 1% 0.1W
3447	4822 117 10834	47k 1% 0.1W
3449	4822 051 20104	100k 5% 0.1W
3450	4822 051 20104	100k 5% 0.1W
3451	4822 051 20101	100Ω 5% 0.1W
3452	4822 117 10833	10k 1% 0.1W
3453	4822 117 10833	10k 1% 0.1W
3462	4822 051 20223	22k 5% 0.1W
3463	4822 051 20223	22k 5% 0.1W
3464	4822 117 11504	270Ω 1% 0.1W
3470	4822 051 20562	5k6 5% 0.1W 0805
3471	4822 051 20562	5k6 5% 0.1W 0805
3472	4822 051 20562	5k6 5% 0.1W 0805
3473	4822 051 20562	5k6 5% 0.1W 0805
3503	4822 051 20689	68Ω 5% 0.1W
3504⚠	4822 117 11152	4Ω7 5%
3505	4822 051 20332	3k3 5% 0.1W
3506	4822 051 20332	3k3 5% 0.1W
3507⚠	4822 117 11152	4Ω7 5%
3508	4822 051 20759	75Ω 5% 0.1W
3509	4822 051 20104	100k 5% 0.1W
3510	4822 051 20104	100k 5% 0.1W
3511	4822 117 11373	100Ω 1% RC12H 0805
3512	4822 117 11449	2k2 1% 0.1W
3513	4822 117 11373	100Ω 1% RC12H 0805
3514	4822 117 11449	2k2 1% 0.1W
3515	4822 117 11373	100Ω 1% RC12H 0805
3516	4822 117 11449	2k2 1% 0.1W
3517	4822 117 11373	100Ω 1% RC12H 0805
3518	4822 117 11449	2k2 1% 0.1W
3602	4822 117 10833	10k 1% 0.1W
3603	4822 117 10833	10k 1% 0.1W
3604	4822 117 10833	10k 1% 0.1W
3606	4822 117 10833	10k 1% 0.1W
3608	4822 117 11188	20k 1% 0.1W
3609	4822 117 10833	10k 1% 0.1W
3610	4822 117 13472	5k1 1% 0805 RC12H R3
3611	4822 117 12955	2k7 1% 0.1W 0805
3612	4822 117 10833	10k 1% 0.1W
3613	4822 117 10833	10k 1% 0.1W
3614	4822 117 10833	10k 1% 0.1W
3615	4822 117 11188	20k 1% 0.1W
3616	4822 117 10833	10k 1% 0.1W
3617	4822 117 13472	5k1 1% 0805 RC12H R3
3618	4822 117 12955	2k7 1% 0.1W 0805
3620	4822 117 10833	10k 1% 0.1W
3621	4822 051 20104	100k 5% 0.1W
3622	4822 117 10833	10k 1% 0.1W
3623	4822 051 20104	100k 5% 0.1W
3624	4822 117 10833	10k 1% 0.1W
3625	4822 117 10833	10k 1% 0.1W
3626	4822 051 20334	330k 5% 0.1W
3627	4822 117 10833	10k 1% 0.1W
3628	4822 117 10833	10k 1% 0.1W
3629	4822 051 20334	330k 5% 0.1W
3630	4822 117 11188	20k 1% 0.1W
3631	4822 117 11504	270Ω 1% 0.1W
3632	4822 117 11504	270Ω 1% 0.1W
3633	4822 117 11504	270Ω 1% 0.1W
3635	4822 117 11188	20k 1% 0.1W
3636	4822 117 11188	20k 1% 0.1W
3650	4822 117 10362	7k5 1% 0.1W
3651	4822 051 20104	100k 5% 0.1W
3652	4822 051 20104	100k 5% 0.1W
3653	4822 117 10362	7k5 1% 0.1W
3654	4822 051 20104	100k 5% 0.1W
3658	4822 051 20104	100k 5% 0.1W
3659	4822 117 10833	10k 1% 0.1W
3660	4822 117 10833	10k 1% 0.1W
3661	4822 117 11437	8k2 1% 0.1W
3662	4822 117 11437	8k2 1% 0.1W
3663	4822 117 13085	5k6 1% RC12H 0.1W 0805
3664	4822 117 13085	5k6 1% RC12H 0.1W 0805
3665	4822 051 20223	22k 5% 0.1W
3666	4822 051 20223	22k 5% 0.1W
3667	4822 117 10834	47k 1% 0.1W
3670	4822 051 20121	120Ω 5% 0.1W
3671	4822 117 11449	2k2 1% 0.1W
3672	4822 117 11449	2k2 1% 0.1W
3673	4822 051 20121	120Ω 5% 0.1W
3680⚠	4822 117 11152	4Ω7 5%
3681⚠	4822 117 11152	4Ω7 5%
3900	4822 051 20008	0Ω JUMP. (0805)
3901	4822 051 20008	0Ω JUMP. (0805)
3902	4822 051 20008	0Ω JUMP. (0805)
3903	4822 051 20008	0Ω JUMP. (0805)
3904	4822 051 20008	0Ω JUMP. (0805)
3905	4822 051 20008	0Ω JUMP. (0805)
3906	4822 051 20008	0Ω JUMP. (0805)
3908	4822 051 20008	0Ω JUMP. (0805)
3911	4822 051 20008	0Ω JUMP. (0805)
3920	4822 051 20008	0Ω JUMP. (0805)
3921	4822 051 20101	100Ω 5% 0.1W
3922	4822 051 20101	100Ω 5% 0.1W
3923	4822 117 10834	47k 1% 0.1W
3924	4822 117 10833	10k 1% 0.1W
3925	4822 117 10833	10k 1% 0.1W
3928	4822 117 10833	10k 1% 0.1W
3929	4822 117 10833	10k 1% 0.1W
3930	4822 117 10833	10k 1% 0.1W
3932	4822 117 10833	10k 1% 0.1W
3933	4822 117 10833	10k 1% 0.1W

COILS

5104	4822 157 71659	100µH 15% 7A06L
5105⚠	4822 157 71206	BLM21A601SPT
5106	4822 157 71658	27µH 15% 7A06L
5107	4822 157 71658	27µH 15% 7A06L
5108	4822 157 71658	27µH 15% 7A06L
5109	4822 157 71658	27µH 15% 7A06L
5110	4822 157 71659	100µH 15% 7A06L
5111	4822 157 71659	100µH 15% 7A06L
5130⚠	4822 157 71206	BLM21A601SPT
5132⚠	4822 157 71206	BLM21A601SPT
5170⚠	4822 157 71206	BLM21A601SPT
5176⚠	4822 157 71206	BLM21A601SPT
5179⚠	4822 157 71206	BLM21A601SPT
5210⚠	4822 157 71206	BLM21A601SPT
5223⚠	4822 157 71206	BLM21A601SPT
5245⚠	4822 157 71206	BLM21A601SPT
5255⚠	4822 157 71206	BLM21A601SPT
5301⚠	4822 157 71206	BLM21A601SPT
5302⚠	4822 157 71206	BLM21A601SPT

5303⚠	4822 157 71206	BLM21A601SPT
5304⚠	4822 157 71206	BLM21A601SPT
5310	4822 242 10958	NFM39R12C102T1
5311	4822 242 10958	NFM39R12C102T1
5312	4822 242 10958	NFM39R12C102T1
5313	4822 242 10958	NFM39R12C102T1
5314	4822 242 10958	NFM39R12C102T1
5315	4822 242 10958	NFM39R12C102T1
5420	4822 242 82201	DSS306-92F223Z16
5421	4822 157 11716	BLM21P300SPT
5422	4822 242 82201	DSS306-92F223Z16
5423	4822 157 11716	BLM21P300SPT
5424	4822 242 82201	DSS306-92F223Z16
5425	4822 157 11716	BLM21P300SPT
5430⚠	4822 157 71206	BLM21A601SPT
5450	4822 157 70601	100µH (920927085A)
5600⚠	4822 157 71206	BLM21A601SPT
5601⚠	4822 157 71206	BLM21A601SPT
5602⚠	4822 157 71206	BLM21A601SPT
5604⚠	4822 157 71206	BLM21A601SPT
5605⚠	4822 157 71206	BLM21A601SPT
5606⚠	4822 157 71206	BLM21A601SPT
5651⚠	4822 157 71206	BLM21A601SPT
5652⚠	4822 157 71206	BLM21A601SPT
5653⚠	4822 157 71206	BLM21A601SPT
5654⚠	4822 157 71206	BLM21A601SPT

DIODES

6120	4822 130 10654	BAT254
6130	4822 130 11397	BAS316
6140	4822 130 11397	BAS316
6141	4822 130 11397	BAS316
6155	4822 130 10654	BAT254
6185	4822 130 11397	BAS316
6186	4822 130 11397	BAS316
6285	4822 130 11397	BAS316
6286	4822 130 11397	BAS316
6290	4822 130 11397	BAS316
6291	4822 130 11397	BAS316
6295	4822 130 11397	BAS316
6296	4822 130 11397	BAS316
6300	4822 130 11397	BAS316
6301	4822 130 11397	BAS316
6432	4822 130 11397	BAS316
6600	4822 130 11383	BZX284-C5V1

TRANSISTORS & INTEGRATED CIRCUITS

7105	4822 209 15602	SZA1010T/K1
7120	5322 130 44787	BFR31
7121	5322 130 60508	BC857B
7130	4822 209 33421	OQ8845
7150	4822 209 30732	LM319D
7170	4822 209 14785	SERVO CONTROLLER V 2.1
7182	5322 130 60508	BC857B
7183	4822 130 60142	BC869
7185	5322 130 61569	BC868
7186	4822 130 60511	BC847B
7192	5322 130 60508	BC857B
7193	4822 130 60142	BC869
7195	5322 130 61569	BC868
7200	4822 130 60511	BC847B
7205	4822 209 60792	74HC4053D
7209	4822 130 60511	BC847B
7210	4822 209 16438	CD65WD
7223	5322 130 42718	BFS20
7224	4822 130 60383	BF824
7225	5322 130 42718	BFS20
7230	5322 209 61482	PC74HC4066T
7235	4822 209 30095	LM833D
7240	5322 209 61482	PC74HC4066T
7241	5322 209 73179	74HCT74D
7245	4822 209 33417	TDA1371H/N1
7260	4822 209 60792	74HC4053D
7270	4822 209 31615	LM324AD
7271	4822 130 60511	BC847B
7272	5322 130 60508	BC857B
7280	4822 209 60792	74HC4053D
7282	4822 209 31615	LM324AD
7285	5322 209 61482	PC74HC4066T
7286	4822 130 60511	BC847B
7287	5322 130 60508	BC857B
7288	4822 130 60142	BC869
7289	5322 130 61569	BC868
7290	4822 130 60511	BC847B
7291	5322 130 60508	BC857B
7292	4822 130 60142	BC869
7293	5322 130 61569	BC868
7294	4822 130 60511	BC847B
7295	5322 130 60508	BC857B
7296	4822 130 60142	BC869
7297	5322 130 61569	BC868
7300	4822 209 30095	LM833D
7301	4822 130 60511	BC847B
7302	4822 130 60511	BC847B
7310	4822 209 31275	MC34064D5
7320	4822 209 16834	MC68HC08AB0
7322	4822 209 16879	IC USER CDR765
7323	4822 209 16439	CY6264-70SNC
7325	5322 209 11548	74HC14D
7326	4822 130 60511	BC847B
7403	5322 209 61482	PC74HC4066T
7405	5322 209 73179	74HCT74D
7410	5322 209 61132	PC74HCT4052T
7411	5322 209 61132	PC74HCT4052T
7445	5322 130 60508	BC857B
7446	5322 130 60508	BC857B
7447	4822 130 60511	BC847B
7448	4822 130 60511	BC847B
7465	4822 209 33395	TDA1315H/N2
7500	5322 209 11517	PC74HCU04T
7501	4822 130 60511	BC847B
7502	4822 130 60511	BC847B
7503	4822 130 60511	BC847B
7504	4822 130 60511	BC847B
7600	4822 209 30095	LM833D
7601	5322 209 61132	PC74HCT4052T
7602	4822 209 30095	LM833D
7603	4822 209 33397	SAA7366T
7604	4822 209 72042	L78L05ACZ
7605	4822 209 60792	74HC4053D
7610	4822 130 60511	BC847B
7611	4822 130 60511	BC847B
7650	4822 209 33403	TDA1305T/N2
7651	4822 209 30095	LM833D
7652	4822 209 82362	NJM4556D

DISPLAY-HEADPHONE-CD OUT-ON/OFF

MISCELLANEOUS

1003/	4822 256 10506	FTD HOLDER
1201	4822 276 13114	TACT SWITCH
1202	4822 276 13114	TACT SWITCH
1203	4822 276 13114	TACT SWITCH
1204	4822 276 13114	TACT SWITCH
1205	4822 276 13114	TACT SWITCH
1206	4822 276 13114	TACT SWITCH
1207	4822 276 13114	TACT SWITCH
1208	4822 276 13114	TACT SWITCH
1209	4822 276 13114	TACT SWITCH
1210	4822 276 13114	TACT SWITCH
1211	4822 276 13114	TACT SWITCH
1212	4822 276 13114	TACT SWITCH
1213	4822 276 13114	TACT SWITCH
1230	4822 242 10753	CSTCS8,00MT-TC
1240	4822 276 13114	TACT SWITCH
1241	4822 276 13114	TACT SWITCH
1242	4822 276 13114	TACT SWITCH
1243	4822 276 13114	TACT SWITCH
1244	4822 276 13114	TACT SWITCH
1245	4822 276 13114	TACT SWITCH
1246	4822 276 13114	TACT SWITCH
1247	4822 276 13114	TACT SWITCH
1248	4822 276 13114	TACT SWITCH
1249	4822 276 13114	TACT SWITCH
1250	4822 276 13114	TACT SWITCH
1290	4822 267 31453	HEADPHONE SOCKET
1295	4822 276 14007	ON/OFF SWITCH
1305	4822 267 31729	DIGITAL OUT CINCH CD
1306	4822 265 11406	ANALOG OUT CINCH CD

CAPACITORS

2200	5322 122 32654	22nF 10% 63V
2201	5322 122 32658	22pF 5% 50V
2202	5322 122 32658	22pF 5% 50V
2203	5322 122 32654	22nF 10% 63V
2204	5322 122 32658	22pF 5% 50V
2205	5322 122 32658	22pF 5% 50V
2206	4822 126 12105	33nF 5% 63V
2207	5322 122 32654	22nF 10% 63V
2300	4822 124 11947	10µF 20% 16V
2301	4822 126 12105	33nF 5% 63V
2302	4822 126 12105	33nF 5% 63V
2303	4822 122 33575	220pF 5% 50V
2304	4822 122 33575	220pF 5% 50V

RESISTORS

3200	4822 051 20393	39k 5% 0.1W
3201	4822 051 10102	1k 2% 0.25W
3202	4822 051 10102	1k 2% 0.25W
3205	4822 051 20101	100Ω 5% 0.1W
3206	4822 051 20101	100Ω 5% 0.1W
3207	4822 051 20472	4k7 5% 0.1W
3208	4822 051 20472	4k7 5% 0.1W
3209	4822 051 20472	4k7 5% 0.1W
3210	4822 051 20472	4k7 5% 0.1W
3211	4822 051 20472	4k7 5% 0.1W
3212	4822 051 20472	4k7 5% 0.1W
3213	4822 051 20472	4k7 5% 0.1W
3214	4822 051 20472	4k7 5% 0.1W
3215	4822 051 20008	0Ω JUMP. (0805)
3216	4822 051 20008	0Ω JUMP. (0805)
3217	4822 117 11449	2k2 1% 0.1W
3300	4822 051 20689	68Ω 5% 0.1W
3301	4822 117 11448	180Ω 1% 0.1W
3302	4822 117 11449	2k2 1% 0.1W
3303	4822 117 11448	180Ω 1% 0.1W
3304	4822 117 11449	2k2 1% 0.1W
4xxx	4822 051 10008	0Ω 5% 0.25W

COILS

5280	4822 242 10805	NFM41R10C102T3
5281	4822 242 10805	NFM41R10C102T3
5300	4822 157 70601	100µH (920927085A)

DIODES

6200	4822 212 30842	TSOP1736SB1
6201	4822 130 10756	BZX284-C2V7

INTEGRATED CIRCUITS

7200	4822 209 16055	TMP87PM74ZF
7205	4822 135 00245	BJ626GK
7501	4822 130 60511	BC847B
7503	4822 130 60511	BC847B

CD MAIN BOARD

MISCELLANEOUS

1001	4822 267 51451	FLEX CONN 16P (CDM)
1200	4822 265 11414	FLEX CONN 22P

CAPACITORS

2102	4822 126 13196	100nF 10% 0805 25V
2103	5322 126 10223	4.7nF 10% 63V
2104	4822 122 33806	820pF 10% 63V
2105	5322 122 31865	1.5nF 10% 63V
2106	4822 126 12944	47nF 10% 50V
2107	4822 126 13692	47pF 1% 63V
2108	4822 122 33175	2.2nF 20% 50V
2130	4822 126 13296	100nF 10% 16V
2131	5322 122 31865	1.5nF 10% 63V
2132	4822 126 13482	470nF 80/20% 16V
2140	4822 124 41796	22µF 20% 16V
2141	4822 126 13482	470nF 80/20% 16V
2142	4822 126 13482	470nF 80/20% 16V
2145	5322 116 80853	560pF 5% 63V
2146	4822 122 33575	220pF 5% 50V
2147	4822 122 33575	220pF 5% 50V
2149	4822 122 33575	220pF 5% 50V
2150	5322 122 31865	1.5nF 10% 63V
2151	4822 122 33575	220pF 5% 50V
2153	4822 122 33575	220pF 5% 50V
2155	4822 122 33575	220pF 5% 50V
2160	4822 124 41796	22µF 20% 16V
2161	4822 126 13196	100nF 10% 0805 25V
2162	4822 126 12104	12nF 5% 63V
2163	4822 126 13196	100nF 10% 0805 25V
2164	4822 124 81286	47µF 20% 16V
2165	4822 122 33177	10nF 20% 50V
2166	5322 122 31863	330pF 5% 50V
2167	5322 122 31863	330pF 5% 50V
2168	4822 124 41796	22µF 20% 16V
2169	4822 126 13196	100nF 10% 0805 25V
2170	5322 122 32654	22nF 10% 63V
2171	4822 124 81286	47µF 20% 16V
2172	4822 126 13196	100nF 10% 0805 25V
2173	5322 122 34123	1nF 10% 50V
2174	4822 126 13196	100nF 10% 0805 25V
2175	4822 126 13196	100nF 10% 0805 25V
2176	4822 126 13196	100nF 10% 0805 25V
2180	4822 124 81286	47µF 20% 16V
2181	4822 126 13196	100nF 10% 0805 25V
2182	4822 126 13196	100nF 10% 0805 25V
2183	4822 124 81286	47µF 20% 16V
2184	4822 124 81286	47µF 20% 16V
2185	4822 126 13196	100nF 10% 0805 25V
2186	4822 126 13196	100nF 10% 0805 25V
2187	4822 124 81286	47µF 20% 16V
2188	4822 124 81286	47µF 20% 16V
2189	4822 126 13196	100nF 10% 0805 25V
2193	4822 126 13692	47pF 1% 63V
2200	4822 126 13196	100nF 10% 0805 25V
2201	4822 122 33177	10nF 20% 50V
2202	4822 122 33177	10nF 20% 50V
2203	4822 122 33177	10nF 20% 50V
2204	5322 122 32654	22nF 10% 63V
2220	4822 126 13196	100nF 10% 0805 25V
2222	4822 124 41796	22µF 20% 16V
2240	4822 124 41796	22µF 20% 16V
2241	4822 124 41796	22µF 20% 16V
2242	4822 124 41796	22µF 20% 16V
2243	4822 124 41796	22µF 20% 16V
2244	4822 126 13196	100nF 10% 0805 25V
2245	4822 124 12181	1000µF 20% 6.3V
2246	4822 126 13196	100nF 10% 0805 25V
2247	4822 126 13196	100nF 10% 0805 25V
2248	4822 126 13196	100nF 10% 0805 25V
2249	4822 124 22649	10µF 20% 16V
2250	5322 126 10184	680P 5% 50V.
2251	5322 126 10184	680P 5% 50V.
2252	5322 122 32531	100pF 5% 50V
2253	5322 122 32654	22nF 10% 63V
2254	5322 122 32654	22nF 10% 63V
2255	4822 124 12255	10µF 20% 50V
2256	4822 124 12255	10µF 20% 50V
2257	4822 124 80865	10µF 20% 25V
2258	4822 124 80865	10µF 20% 25V
2259	5322 122 32531	100pF 5% 50V
2261	4822 124 41796	22µF 20% 16V
2262	4822 124 41796	22µF 20% 16V

RESISTORS

3105	4822 051 20333	33k 5% 0.1W
3106	4822 117 10833	10k 1% 0.1W
3107	4822 051 20153	15k 5% 0.1W
3108	4822 051 10102	1k 2% 0.25W
3110	4822 051 20101	100Ω 5% 0.1W
3111	4822 051 20101	100Ω 5% 0.1W
3112	4822 051 20101	100Ω 5% 0.1W
3113	4822 051 10102	1k 2% 0.25W
3114	4822 051 20101	100Ω 5% 0.1W
3115	4822 051 20101	100Ω 5% 0.1W
3116	4822 117 10833	10k 1% 0.1W
3117	4822 051 10102	1k 2% 0.25W
3118	4822 117 10833	10k 1% 0.1W
3119	4822 051 20223	22k 5% 0.1W
3120	4822 051 20104	100k 5% 0.1W
3121	4822 051 20105	1M 5% 0.1W
3123	4822 051 20824	820k 5% 0.1W
3125	4822 051 20824	820k 5% 0.1W
3126	4822 051 20824	820k 5% 0.1W
3127	4822 051 20105	1M 5% 0.1W
3128	4822 117 10833	10k 1% 0.1W
3129	4822 117 10833	10k 1% 0.1W
3130	4822 051 20154	150k 5% 0.1W
3131	4822 117 10834	47k 1% 0.1W
3132	4822 051 20472	4k7 5% 0.1W
3133	4822 051 10102	1k 2% 0.25W
3134	4822 051 20104	100k 5% 0.1W
3135	4822 051 20472	4k7 5% 0.1W
3136	4822 051 10102	1k 2% 0.25W
3137	4822 051 20104	100k 5% 0.1W
3138	4822 117 10833	10k 1% 0.1W
3140⚠	4822 117 11152	4Ω7 5%
3144	4822 117 10833	10k 1% 0.1W
3146	4822 117 10833	10k 1% 0.1W
3148	4822 117 10833	10k 1% 0.1W
3150	4822 117 10833	10k 1% 0.1W
3152	4822 117 10833	10k 1% 0.1W
3154	4822 117 10833	10k 1% 0.1W
3156	4822 117 10833	10k 1% 0.1W
3160	4822 117 11504	270Ω 1% 0.1W
3161	4822 117 11504	270Ω 1% 0.1W
3162	4822 051 20681	680Ω 5% 0.1W
3163	4822 117 11383	12k 1% 0.1W
3164	4822 117 11383	12k 1% 0.1W
3165⚠	4822 117 11151	1Ω 5%
3166	4822 117 11383	12k 1% 0.1W
3167	4822 117 11454	820Ω 1% 0.1W
3168	4822 117 11383	12k 1% 0.1W
3169	4822 051 20154	150k 5% 0.1W
3170	4822 051 20008	0Ω JUMP. (0805)
3171	4822 117 11504	270Ω 1% 0.1W
3172	4822 117 11504	270Ω 1% 0.1W

3173	4822 117 11454	820Ω 1% 0.1W
3174	4822 051 20223	22k 5% 0.1W
3175⚠	4822 117 11151	1Ω 5%
3176	4822 051 20182	1k8 5% 0.1W
3177	4822 117 10834	47k 1% 0.1W
3178	4822 117 10834	47k 1% 0.1W
3180⚠	4822 117 11748	2Ω2 1206 5% FUSE
3181⚠	4822 117 11748	2Ω2 1206 5% FUSE
3182⚠	4822 117 11748	2Ω2 1206 5% FUSE
3183⚠	4822 117 11748	2Ω2 1206 5% FUSE
3184⚠	4822 117 11748	2Ω2 1206 5% FUSE
3185	4822 051 20223	22k 5% 0.1W
3186	4822 051 20223	22k 5% 0.1W
3188	4822 117 10834	47k 1% 0.1W
3189	4822 051 20008	0Ω JUMP. (0805)
3191	4822 051 20101	100Ω 5% 0.1W
3193	4822 051 20101	100Ω 5% 0.1W
3194	4822 117 10833	10k 1% 0.1W
3195	4822 051 20008	0Ω JUMP. (0805)
3200	4822 117 10833	10k 1% 0.1W
3201	4822 051 20562	5k6 5% 0.1W 0805
3202	4822 051 20562	5k6 5% 0.1W 0805
3203	4822 051 20472	4k7 5% 0.1W
3204	4822 051 20101	100Ω 5% 0.1W
3205	4822 051 20101	100Ω 5% 0.1W
3206⚠	5322 117 11726	10Ω 5%
3207	4822 051 20472	4k7 5% 0.1W
3208	4822 117 10833	10k 1% 0.1W
3209	4822 051 20562	5k6 5% 0.1W 0805
3210	4822 051 20562	5k6 5% 0.1W 0805
3211	4822 051 20101	100Ω 5% 0.1W
3212	4822 051 20101	100Ω 5% 0.1W
3213	4822 051 20223	22k 5% 0.1W
3214	4822 051 20101	100Ω 5% 0.1W
3215	4822 051 20101	100Ω 5% 0.1W
3216	4822 051 20101	100Ω 5% 0.1W
3217	4822 051 20101	100Ω 5% 0.1W
3220	4822 117 10833	10k 1% 0.1W
3221	4822 117 10833	10k 1% 0.1W
3222	4822 117 10833	10k 1% 0.1W
3223⚠	4822 117 11748	2Ω2 1206 5% FUSE
3224	4822 117 10833	10k 1% 0.1W
3225	4822 117 10833	10k 1% 0.1W
3226	4822 051 20223	22k 5% 0.1W
3228	4822 051 20223	22k 5% 0.1W
3229	4822 051 20105	1M 5% 0.1W
3240	4822 051 20223	22k 5% 0.1W
3241	4822 051 20223	22k 5% 0.1W
3246	4822 117 13085	5k6 1% RC12H 0.1W 0805
3247	4822 117 13085	5k6 1% RC12H 0.1W 0805
3248	4822 117 11437	8k2 1% 0.1W
3249	4822 117 10833	10k 1% 0.1W
3250	4822 117 11437	8k2 1% 0.1W
3251	4822 117 10833	10k 1% 0.1W
3252	4822 051 20104	100k 5% 0.1W
3253	4822 051 20104	100k 5% 0.1W
4xxx	4822 051 10008	0Ω 5% 0.25W

COILS

5220	4822 157 11405	NFM41R00C221T3
5221	4822 157 11405	NFM41R00C221T3
5222	4822 157 11405	NFM41R00C221T3
5223	4822 157 11405	NFM41R00C221T3
5230	5322 242 73686	CST12.00MTW-TF01
5240	4822 242 82201	DSS306-92F223Z16
5241	4822 242 82201	DSS306-92F223Z16
5242	4822 242 82201	DSS306-92F223Z16
5243	4822 157 11405	NFM41R00C221T3
5244	4822 157 11405	NFM41R00C221T3
5245	4822 157 11405	NFM41R00C221T3
5246	4822 157 11405	NFM41R00C221T3
5247	4822 157 11405	NFM41R00C221T3
5248⚠	4822 157 71206	BLM21A601SPT
5249⚠	4822 157 71206	BLM21A601SPT
5250⚠	4822 157 71206	BLM21A601SPT
5251⚠	4822 157 71206	BLM21A601SPT
5260⚠	4822 157 71206	BLM21A601SPT

DIODES

6130	4822 130 11397	BAS316
6200	5322 130 80214	BAS28

TRANSISTORS & INTEGRATED CIRCUITS

7104	4822 130 60511	BC847B
7105	5322 130 60803	BST72A
7106	5322 130 60508	BC857B
7107	4822 130 60511	BC847B
7108	4822 130 60511	BC847B
7109	5322 209 11517	PC74HCU04T
7110	4822 130 60511	BC847B
7111	4822 130 60511	BC847B
7130	4822 130 60511	BC847B
7131	5322 130 60508	BC857B
7132	4822 130 60511	BC847B
7160	4822 209 32852	TDA7073A/N2
7161	4822 209 32852	TDA7073A/N2
7180	4822 209 90341	SAA7372GP/M1
7200	5322 130 60508	BC857B
7201	4822 130 60142	BC869
7202	5322 130 61569	BC868
7203	4822 130 60142	BC869
7204	5322 130 60508	BC857B
7205	5322 130 61569	BC868
7206	4822 130 60511	BC847B
7220	4822 209 16881	MICROPROC. P8XC654XXA
7240	4822 209 33403	TDA1305T/N2
7241	4822 209 30095	LM833D

CONNECTIONS

8001	4822 320 12451	CWAS FLEX CDR 20P
8005	4822 320 12475	CWAS FLEX CDR 22P

POWER SUPPLY

MISCELLANEOUS

1003	4822 218 11938	PSU ASSY 20PS314/00
1003	4822 218 11967	PSU ASSY 20PS314/17
4⚠	4822 265 31015	MAINS INLET /00
4⚠	4822 265 31016	MAINS INLET /17
9⚠	4822 256 92053	FUSE HOLDER CLICK (PROM)
1120⚠	4822 070 32002	FUSE 218002.(2A)
1125	4822 252 60151	DSP-501N-A21F A

CAPACITORS

2101	4822 126 13695	82pF 1% NP0 63V
2102	5322 126 10511	1nF 5%NP0 50V
2103	5322 122 32268	470pF 10% 50V
2104	5322 126 10223	4,7nF10%X7R 63V
2109	5322 122 31865	1,5nF10%X7R 63V
2110	4822 124 41576	2,2µF 20% 50V
2111	4822 126 13196	100nF 10% 0805 X7R 25V
2113	4822 122 33127	2,2nF10%X7R 63V
2114	4822 126 13196	100nF 10% 0805 X7R 25V
2120	4822 121 10799	330nF 20% MPP 250V
2121	4822 124 12281	150µF 20% 400V(all versions except /17 USA)
2121	4822 124 12293	330µF 20% 250V(/17 version)
2125	4822 121 51598	2,2nF 5% 400V
2126	4822 121 51598	2,2nF 5% 400V
2127	4822 126 14496	470pF 10% 1KV
2129	4822 124 81024	4,7µF20% 50V
2131⚠	4822 126 14497	2,2nF 20% 250V
2133	4822 124 12062	100uF 20% 25V
2201	4822 126 13196	100nF 10% 0805 X7R 25V
2202	5322 122 32654	22nF10%X7R 63V
2203	4822 124 40248	10µF20% 63V
2210	4822 124 12282	2200µF 20% YK 10V
2211	4822 122 31173	220pF 10% 500V
2212	4822 121 43526	47nF 5% 250V
2220	4822 124 40849	330µF 20% 16V
2222	4822 124 12283	100µF 20% MS7 6.3V
2230	4822 124 81144	1000µF 16V
2240	4822 124 41545	220µF20% 16V
2242	4822 124 41584	100µF 20% 10V
2250	4822 124 40248	10µF20% 63V
2260	4822 122 31175	1nF 10% 500V

RESISTORS

3101	4822 116 52304	82k 5% 0,5W
3102	4822 051 20223	22k 5% 0,1W
3103	4822 051 20822	8k2 5% 0,1W
3104	4822 051 20153	15k 5% 0,1W
3105	4822 051 20153	15k 5% 0,1W
3106	4822 051 20102	1k 5% 0,1W
3107	4822 051 20184	180k 5% 0,1W
3108	4822 117 10965	18k 1% 0,1W
3109	4822 051 20331	330Ω 5% 0,1W
3110	4822 117 10833	10k 1% 0,1W
3111	4822 051 20229	22Ω 5% 0,1W
3112	4822 051 20101	100Ω 5% 0,1W
3113	4822 051 20159	15Ω 5% 0,1W
3115	4822 116 52232	910Ω 5% 0,5W
3116	4822 117 11448	180Ω 1% 0,1W
3120	4822 116 21217	1MA/423V 800V
3122	4822 117 13515	2Ω7 3W AC03 WW
3123	4822 050 21803	18k 1% 0,6W
3124	4822 116 83872	220Ω 5% 0,5W
3125	4822 050 21002	1k 1% 0,6W
3126	4822 116 80676	1Ω5 5% 0,5W
3127	4822 116 80676	1Ω5 5% 0,5W
3128	4822 116 80676	1Ω5 5% 0,5W
3129	4822 116 83864	10k 5% 0,5W
3134	4822 050 21803	18k 1% 0,6W
3201	4822 050 21002	1k 1% 0,6W
3202	4822 050 13302	3k3 1% 0,4W
3203	4822 116 52175	100Ω 5% 0,5W
3204	4822 051 20182	1k8 5% 0,1W
3205	4822 051 20008	0Ω JUMP. (0805)
3206	4822 051 20332	3k3 5% 0,1W
3221	4822 051 20182	1k8 5% 0,1W
3222	4822 051 20102	1k 5% 0,1W
3230	4822 050 21002	1k 1% 0,6W
4110	4822 051 20008	0Ω JUMP. (0805)

COILS

5120⚠	4822 157 53348	FILTER CHOKE ASSY CU15D3
5125	4822 157 11411	100MHz
5131⚠	4822 146 11062	TRANSFORMER CT296F CDR765
5132	4822 157 51462	10µH
5210	4822 157 11722	6,8µH 20% 7,7X9,5
5215	4822 157 11722	6,8µH 20% 7,7X9,5
5220	4822 157 51462	10µH
5225	4822 157 53139	4,7µH
5226	4822 157 53139	4,7µH
5230	4822 157 50963	2,2µH
5240	4822 157 51462	10µH
5250	4822 157 51462	10µH
5255	4822 157 51195	1µH 20% 4X9,8MM AXIAL

DIODES

6102	4822 130 31603	1N4006
6103	4822 130 31603	1N4006
6104	4822 130 31603	1N4006
6105	4822 130 31603	1N4006
6106	4822 130 42606	BYD33J
6107	4822 130 42606	BYD33J
6113	4822 130 32245	BYV10-40
6114	4822 130 42488	BYD33D
6129	5322 130 80122	BZX84-C24
6132	4822 130 42488	BYD33D
6201	4822 130 34328	BZX79-B30
6210	4822 130 83801	PBYR745F
6211	4822 130 42488	BYD33D
6212	4822 130 42488	BYD33D
6220	4822 130 42488	BYD33D
6230	4822 130 80983	BYW29F-150
6231	4822 130 31603	1N4006
6240	4822 130 42488	BYD33D
6250	4822 130 42606	BYD33J
6275	4822 130 30621	1N4148

IC's

7110	4822 209 90025	MC44603P
7125	4822 130 63689	STP3N60FI
7200⚠	4822 130 91451	CQY80NG
7201	4822 209 16944	KA431AZ
7221	4822 209 80591	LM317T
7249	4822 209 82112	MC7908CT
7250	4822 209 31257	MC79L24ACP

V22017 # 1031036

Compact disc recorder

CDR765

A99-251

Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Information : none.

CORRECTIONS TO SERVICE MANUAL

CDR MAIN BOARD

✶ Correction of circuit diagrams and parts list :

2504	4822 126 13196	100nF 10% 0805 25V
2436	4822 124 40433	47µF 20% 25V
2437	4822 124 40433	47µF 20% 25V
2442	4822 124 40433	47µF 20% 25V
3453	4822 051 10102	1k 2% 0.25W

✶ Added to circuit diagrams and parts list :

3278	4822 051 20101	100Ω 5% 0.1W

New drawings are enclosed

CD MAIN BOARD

✶ Correction of circuit diagrams and parts list :

3135	4822 051 20101	100Ω 5% 0.1W
3211	5322 130 31928	BAS16
5240	4822 252 51185	MP63 630mA 65V

New drawings are enclosed.

HEADPHONE

✶ Correction of parts list :

1290	4822 265 30975	Headphone Socket

CHANGES DURING PRODUCTION

CDR MAIN BOARD

✶ To lower the headphone volume level, the following changes have been made to the CDR Main Board :

Change of circuit diagrams and parts list :

3670	4822 117 11448	180Ω 1% 0.1W
3673	4822 117 11448	180Ω 1% 0.1W

Deleted from circuit diagrams and parts list :

3651	4822 051 20104	100k 5% 0.1W
3652	4822 051 20104	100k 5% 0.1W

✶ The CDR Main Board Top Side drawing on page 12-9 shows component 7320 having only 80 pins instead of 100. In the enclosed drawing this has been corrected. The same error occurs on the PCB. The service text on the PCB itself will be corrected from L4 onwards.

New drawings are enclosed.

CD MAIN BOARD

✶ As part of a solution to the "mute" problem the board layout has been changed from L3 to L4. The changes comprise of :

Adding to circuit diagrams and parts list

2100	4822 126 13196	100nF 10% 0805 25V
2101	4822 126 13196	100nF 10% 0805 25V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2239	4822 126 13196	100nF 10% 0805 25V

Deleting from circuit diagrams and parts list

5243	4822 157 11405	NFM41R00C221T3

New drawings are enclosed.